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Fifth report on the protection of the atmosphere

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I. Introduction

1. At its sixty-ninth session in 2017, the International Law Commission had before it the fourth report submitted by the Special Rapporteur on the topic of the protection of the atmosphere (A/CN.4/705 and Corr.1). The report contained proposals for four draft guidelines regarding the interrelationship between the law on the protection of the atmosphere and other fields of law, such as international trade and investment law, the law of the sea and human rights law.

2. The fourth report was considered by the Commission at its 3355th to 3359th meetings, on 10, 11, 12, 16 and 17 May 2017, respectively. In addition, the Commission held an informal meeting in the form of a dialogue with scientists organized by the Special Rapporteur on 4 May 2017, which members of the Commission found useful and of which they were appreciative.[1]

3. The Commission decided to send to the Drafting Committee all the draft guidelines proposed by the Special Rapporteur. The Commission provisionally adopted the preambular paragraphs and draft guideline 9 with the commentaries thereto, at its sixty-ninth session.[2]

Debate held at the Sixth Committee at its seventy-second session

4. In October 2017, the Sixth Committee considered the Commission's work on the topic.[3] The delegations generally welcomed and appreciated the work of the Commission on this topic,[4] while a few delegations expressed reservations to the

[1] The dialogue with scientists on the protection of the atmosphere was chaired by the Special Rapporteur. The dialogue included the following presentations: "Overview: oceans and the atmosphere" by Øystein Hov, President of the Commission for Atmospheric Sciences, World Meteorological Organization (WMO); "Transboundary air pollution, the United Nations Economic Commission for Europe" by Peringe Grennfelt, former Chairperson of the Working Group on Effects, Convention on Long-range Transboundary Air Pollution, Economic Commission for Europe; "Linkages between the oceans and the atmosphere" by Tim Jickells, Co-Chairperson of the Working Group 38 of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, WMO; and "Linking science with law for the protection of the atmosphere" by Arnold Kreilhuber, Head of the International Environmental Law Unit, Division of Environmental Law and Conventions, United Nations Environment Programme. The dialogue was followed by a question and answer session. The summary of the informal dialogue is available on the website of the Commission.

[2] *Official Records of the General Assembly, Seventy-second session, Supplement No. 10* (A/72/10), chap. VI, paras. 59–65.

[3] The Special Rapporteur expresses his gratitude to Shi Fengxia for her assistance in summarizing the debate of the Sixth Committee.

[4] Italy, *Official Records of the General Assembly, Seventy-second session*, 18th meeting (A/C.6/72/SR.18), paras. 141–144; Marshall Islands (on behalf of the Pacific small island developing States), ibid., 22nd meeting (A/C.6/72/SR.22), paras. 51–53; European Union, ibid., paras. 54–62; Austria, ibid., paras. 69–71; Portugal, ibid., paras. 78–80; Mexico, ibid., paras. 87–91; Singapore, ibid., paras. 103–108; India, ibid., paras. 117–119; Peru, ibid., para. 114; Japan, ibid., paras. 123–125; Sri Lanka, ibid., 23rd meeting (A/C.6/72/SR.23), paras. 51–52; Thailand, ibid., para. 53; Chile, ibid., paras. 86–88; South Africa, ibid., 24th meeting (A/C.6/72/SR.24), paras. 15–18; Estonia, ibid., paras. 20–21; Turkey, ibid., para. 32; Spain, ibid., paras. 38–40; Tonga, ibid., paras. 46–49; New Zealand, ibid., para. 72; Micronesia (Federated States of), ibid., paras. 78–86; Republic of Korea, ibid., paras. 99–100; Malaysia, ibid., paras. 114–116; Viet Nam, ibid., para. 121; Indonesia, ibid., paras. 126–128; Senegal, ibid., paras. 131–134; El Salvador, ibid., 25th meeting (A/C.6/72/SR.25), paras. 4–6; and the International Chamber of Commerce, ibid., paras. 11–13.

topic.[5] Several delegations agreed that the participation by the scientists was very useful.[6] Some delegations recalled the importance of the 2013 understanding,[7] while others stated their concern regarding the blanket exclusion in the understanding of many rules and principles that were an integral part of the law on the protection of the atmosphere, such as the precautionary principle, the preventive principle, the polluter-pays principle and common but differentiated responsibilities.[8] Some delegations observed that the principle of common but differentiated responsibilities and respective capabilities, based on the 2015 Paris Agreement, offered a balanced approach to the special situation and needs of developing countries.[9] One delegation believed that the principle of the common heritage of humankind should be included in the preamble.[10]

5. A number of delegations expressed general support for the preambular paragraphs provisionally adopted by the Commission.[11] Several delegations highlighted the linkage between the atmosphere and oceans,[12] and particularly the issue of sea-level rise caused by climate change.[13] One delegation, however, expressed the view that the issues of the law of the sea had no place in a set of guidelines on the protection of the atmosphere.[14] Reference to the interests of future generations was supported by many delegations.[15] A few delegations noted that the interests of current generations should also be mentioned.[16]

6. Many delegations generally supported the inclusion of draft guideline 9 on the interrelationship among relevant rules,[17] while some other delegations expressed certain concerns.[18] With regard to paragraph 1 of draft guideline 9, there was broad support for interpreting and applying the rules of international law relating to the protection of the atmosphere and other relevant rules of international law in line with

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[5] Russian Federation, ibid., 19th meeting (A/C.6/72/SR.19), para. 36; Slovakia, ibid., 23rd meeting (A/C.6/72/SR.23), paras. 28–33; Czechia, ibid., paras. 64–67; United Kingdom of Great Britain and Northern Ireland, ibid., 24th meeting (A/C.6/72/SR.24), paras. 50–55; and United States of America, ibid., paras. 124–125, who believed that the topic should be suspended or discontinued.

[6] Italy, Mexico, India, Japan, Chile, Tonga and El Salvador.

[7] France (ibid., 23rd meeting (A/C.6/72/SR.23), paras. 38–41) and the United States.

[8] South Africa, Indonesia and El Salvador.

[9] European Union and the United Kingdom.

[10] Indonesia.

[11] Italy, Marshall Islands (on behalf of Pacific small island developing States), European Union, Austria, Singapore, Peru, Israel (ibid., 24th meeting (A/C.6/72/SR.24), paras. 104–107), India, Thailand, Tonga, Chile, Sri Lanka, Micronesia (Federated States of), New Zealand, Spain, Republic of Korea, Malaysia, Indonesia and El Salvador. For instance, Austria stated that "the emphasis on the situations and effects mentioned in new preambular paragraphs is well-founded" (see http://statements.unmeetings.org/media2/16154565/austria.pdf).

[12] Peru, Sri Lanka, Chile, Micronesia (Federated States of), Malaysia, New Zealand and Indonesia.

[13] Austria, Marshall Islands (on behalf of the small island developing States), Micronesia (Federated States of), Indonesia, India, Sri Lanka, New Zealand and Malaysia.

[14] Greece, ibid., 23rd meeting (A/C.6/72/SR.23), paras. 71–74.

[15] For instance, Sri Lanka stated that: "The invocation of the fundamental principle of intergenerational equity which had been recognized in the jurisprudence of the International Court of Justice, namely that the global commons were held in trust for the benefit of the future generations, was most pertinent".

[16] Singapore and Malaysia.

[17] Italy, European Union, Austria, India, Japan, Sri Lanka, Micronesia (Federated States of), Republic of Korea, Malaysia, New Zealand, Portugal, Mexico, Peru, Thailand, Greece, Senegal, Chile, Estonia, Spain, Tonga, El Salvador, Israel and the International Chamber of Commerce.

[18] Russian Federation, Singapore, Slovakia, China (ibid., 23rd meeting (A/C.6/72/SR.23), para. 55) and Poland (ibid., 24th meeting (A/C.6/72/SR.24), paras. 2–3). Czechia questioned "whether there is indeed a branch of international law that could be called the law on the protection of the atmosphere". Viet Nam "was of the view that the term 'atmosphere' ... needed to be more clearly defined so as to distinguish it from other territorial domains".

the principles of harmonization and systemic integration, and with a view to avoiding conflicts.[19] However, a few delegations expressed concern that the present text of the draft guideline lacks the backing of international practice.[20] Another delegation stated that providing a separate guideline might create the danger of moving beyond the scope of the topic.[21] A few delegations believed that requiring all existing relevant rules to be compatible with each other might impede any new development that substantially differs from the existing rules,[22] would create potential overlap[23] and would be unworkable.[24]

7. Regarding paragraph 2 of draft guideline 9, the delegations were generally in favour of the idea that, when developing new rules of international law relating to the protection of the atmosphere and other relevant rules of international law, States should endeavour to do so in a harmonious manner.[25] It was underlined that paragraph 2 should not be understood as requiring that new rules for the protection of the atmosphere be compatible with all existing rules of international law.[26] While some delegations stated that paragraph 2 constituted progressive development of international law,[27] others noted that the paragraph stated the obvious: in every area of international law, new rules should be developed harmoniously in relation to other rules of international law.[28]

8. Finally, several delegations appreciated the reference to vulnerable people in paragraph 3 of draft guideline 9.[29] The view was expressed that the concern for particularly vulnerable groups should permeate the draft guidelines as a whole and not be limited to matters of interpretation.[30] It was also observed that paragraph 3 introduced a new consideration that did not guide the application of the preceding paragraphs, and should therefore be included in a separate draft guideline. Furthermore, it was stated that those persons or groups were not vulnerable to atmospheric pollution and degradation per se but to their effects.[31] One delegation asked to revisit its understanding of "particularly vulnerable persons and groups", because those groups that were particularly vulnerable to climate change might not be the same as those that were vulnerable to atmospheric pollution and degradation.[32]

9. Regarding the future plan of work, the delegations agreed with the Commission's plan to complete the first reading of the topic in 2018 and the second reading in 2020.[33] The delegations of some Pacific island States proposed that the Commission should take on a topic related to sea-level rise as a separate new topic.[34]

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[19] Italy, Slovakia, Thailand, Greece, Estonia, Republic of Korea and Israel.
[20] China, Russian Federation, Singapore and Slovakia.
[21] Poland.
[22] Austria.
[23] Israel and Viet Nam.
[24] Slovakia, Czechia and United Kingdom.
[25] Italy, European Union, Austria, Japan, Chile, Estonia, Spain, Republic of Korea and El Salvador.
[26] Austria.
[27] Chile.
[28] Slovakia and Czechia.
[29] Italy, Austria, South Africa, Mexico, Japan, Sri Lanka, Chile, Estonia, Spain, Micronesia (Federated States of), Tonga and Republic of Korea.
[30] Austria.
[31] Spain.
[32] Slovakia.
[33] Singapore, Mexico, Sri Lanka, Israel, South Africa, Tonga, Russian Federation, Chile, India, Japan, Italy, El Salvador and the International Chamber of Commerce.
[34] Micronesia (Federated States of) and Marshall Islands.

Purpose of the present report

10. Building on the previous four reports, the Special Rapporteur wishes to consider in the present (fifth) report issues relating to implementation (section II below), compliance (section III) and dispute settlement (section IV). The Special Rapporteur considers that these issues are the intrinsic and logical consequences of the obligations and recommendations that have been provisionally adopted so far by the Commission on the topic and, naturally, therefore, an analysis of these issues is in no way intended to expand the scope of the topic under draft guideline 2.

11. The use of the terms "implementation" and "compliance" are not necessarily uniform in literature.[35] The two terms are used here for convenience in such a way that "implementation" refers to measures that States take to make treaty provisions effective in their national laws,[36] while "compliance" refers to mechanisms or procedures at the level of international law to verify whether States in fact adhere to the provisions of a treaty and to the implementing measures that they have instituted for the protection of the atmosphere.[37]

II. Implementation

A. Forms of national implementation

12. National implementation in the sense of "measures [that] parties take to make international agreements operative in their domestic law"[38] takes place as legislative, administrative and judicial actions. All these forms of implementation are regulated by the national constitutional and legal system of each State; all the present draft guidelines can do is address the obligation that States have to implement the relevant international law in good faith. There may be, however, certain common features that can be pointed out with regard to national legislation. Administrative action is normally to be taken in accordance with the law of the State and, accordingly, there is not much to be added to what is said about legislation.[39] Judicial action depends on the national judicial system of each State as regards the jurisdiction, standing and competence to interpret and apply international law. It may be difficult to generalize this aspect of implementation and enforcement, which, apart from the sporadic, albeit impressive, instances of some States, may not be sufficient to be deemed as demonstrating a "trend" in international law relating to the protection of the atmosphere.[40]

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[35] See, generally, Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law*, 3rd ed. (Cambridge, United Kingdom, Cambridge University Press, 2012), pp. 135–183.

[36] Catherine Redgwell, "National implementation", in *The Oxford Handbook of International Environmental Law*, Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds. (Oxford, Oxford University Press, 2007), p. 925.

[37] Edith Brown Weiss and Harold K. Jacobson, eds., *Engaging Countries: Strengthening Compliance with International Environmental Accords* (Cambridge, MIT Press, 1998). See "A framework for analysis", pp. 1–18, at p. 4.

[38] Redgwell, "National implementation" (see footnote 36 above), p. 925.

[39] Ibid., pp. 930–938.

[40] Recent domestic court cases relating to the protection of the atmosphere include the following: (a) Federal Administrative Court of Austria (2017): approval by the Government of Austria of the plan for a third runway at Vienna International Airport was struck down by the Federal Administrative Court because authorizing the runway would, inter alia, be contrary to the national and international obligations of Austria to mitigate the causes of climate change, resulting in an increase in the country's annual CO_2 emissions (BVwG, 02.02.2017, W109 2000179-1/291E);

[footnote 40 continued at bottom of next page]

[footnote 40 continued]

(b) Constitutional Court of Colombia (2016): striking down of the provisions of Law No. 1450 of 2011 and of Law No. 1753 of 2015 that threatened high-altitude ecosystems, called *páramos*. The court noted several important features of *páramos*, including their fragility, their lack of regulatory protection, their role in providing Colombia with as much as 70 per cent of its drinking water, and the capacity of their soils and vegetation to capture CO_2 from the atmosphere (Decision C-035/16, at para. 142);

(c) United States District Court, District of Oregon (2016): in the case *Juliana v. United States*, environmental activists who were too young to vote, and the purported guardians of future generations, brought an action for declaratory and injunctive relief against the United States, the President, and numerous executive agencies, alleging that greenhouse gas emissions from CO_2, produced by burning fossil fuels, were destabilizing the climate system, and asserting violations of substantive due process and defendants' obligation to hold natural resources in public trust. The District Court, Coffin, United States Magistrate Judge, 2016 WL 183903, allowed industry associations to intervene as defendants. Defendants and interveners filed motions to dismiss the case because of a lack of subject matter jurisdiction and for failure to state a claim. The District Court held that: (a) a non-justiciable political question was not raised; (b) activists alleged a concrete and particularized injury, as required for article III standing; (c) the alleged injury was imminent; (d) the right to a climate system capable of sustaining human life is a fundamental right protected by substantive due process; (e) activists stated a claim for a substantive due process violation based on a danger creation theory; (f) activists adequately alleged harm to public trust assets; (g) the public trust doctrine can apply to the federal government; and (h) activists had a right of action to enforce the public trust doctrine (217 F.Supp.3d 1224 (D. Or. 2016);

(d) The Hague District Court of the Netherlands (2015): The Hague District Court ruled that the State must take more action to reduce the greenhouse gas emissions in the Netherlands and ordered the State to limit the joint volume of Dutch annual greenhouse gas emissions, or have them limited, so that this volume will have reduced by at least 25 per cent at the end of 2020 compared with the level in the year 1990, as claimed by the Urgenda Foundation, the plaintiff (C/09/456689/HA ZA 13-1396, 24 June 2015);

(e) United States Supreme Court (2007, 2014): the decision in *Massachusetts et al v. Environmental Protection Agency (EPA)* discussed, in part, the meaning of "air pollutant" under Title II, section 202 (a) (1), of the Clean Air Act, according to which the term "air pollutant" means "any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive ... substance or matter which is emitted into or otherwise enters the ambient air". In the course of the proceedings, the United States Environmental Protection Agency asserted that Title II, section 202 (a) (1) of the Act[40] did not authorize the Agency to regulate greenhouse gases, since such gases were not agents of air pollution in the traditional sense, and therefore could not be classified as "air pollutants" within the meaning of the Act. However, the Court held that the Act defined "air pollutant" so sweepingly that the term embraces "all airborne compounds of whatever stripe". The Court therefore concluded that: "Because greenhouse gases fit within the Clean Air Act's capacious definition of 'air pollutant', the Agency has the statutory authority to regulate emissions of such gases from new motor vehicles" (Supreme Court decision of 2 April 2007, 549 S. Ct. 497, 2007. See also, Jonathan Zasloff, "*Massachusetts v. Environmental Protection Agency*, 127 S. Ct. 1438", *American Journal of International Law*, vol. 102, No. 1 (2008), pp. 134–143). In response to this Court decision, the Agency determined that emissions of greenhouse gases from new motor vehicles would be subject to the requirements under the Act's provisions relating to the prevention of significant deterioration and Title V of the Act. However, in the 2014 *Utility Air Regulatory Group v. EPA* case, the Supreme Court pronounced that "where the term 'air pollutant' appears in the Act's operative provisions [such as the prevention of significant deterioration and Title V], the Agency has routinely given it a narrower, context-appropriate meaning". Given the United States Congress' extensive use of "air pollutant", the Court concluded that, when interpreting the prevention of significant deterioration and Title V permitting requirements, the meaning of that term is narrower than the comprehensive definition the Court recognized in the *Massachusetts* case under Title II (*Utility Air Regulatory Group v. EPA*, United States Supreme Court decision of 23 June 2014, 134 S. Ct. 2427 (2014)). See the Special Rapporteur's second report (A/CN.4/681), para. 15;

[footnote 40 continued at bottom of next page]

13. States have different constitutional systems with regard to the national implementation of treaties, ranging from a system of "transformation" into national law to that of "incorporation".[41] In some countries, a certain category of treaties is considered as self-executing; that is, they do not require national legislation or regulations to become directly applicable.[42] Generally, there are only a limited number of cases in the field of international environmental law that are self-executing. In most instances, States need to have implementing legislation to give effect nationally to the provisions of the treaties that they have concluded, if their national law is not properly equipped for implementing those provisions. It is necessary therefore to determine the characteristics of the treaty obligations.

14. The legal characteristics of international obligations are naturally varied and the modalities of national implementation vary depending on those characteristics. From such a perspective, it may be useful to distinguish at least the following three types of obligations in relation to national law. In the first category are the obligations for which States are required to take appropriate measures within their existing national law (obligation of measures). This is a traditional type of international obligation, and the measures to be taken to meet this obligation are left to the broad discretion of States. Accordingly, States are not normally required to amend their national law. The second category consists of obligations that require States to follow certain specific methods provided for in a treaty (obligation of methods) for which States must amend their existing national law or enact new legislation if they are not equipped with the particular methods that are specified by the treaty. For instance, if the treaty requires States to impose an environmental tax on carbon dioxide (CO_2) emissions, in the absence of a national law to authorize such a tax, new legislation is required. The treaty itself often imposes upon States an obligation regarding national legislation. The third category is a type of obligation that requires States to maintain a certain legal or factual level specified by a treaty (obligation of maintenance), rather than aiming for specific measures or adopting specific methods. To fulfil such an obligation, States are therefore obliged to undertake constant monitoring and supervision to ensure that the prescribed

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[footnote 40 continued]

(f) Australian Court of Appeal (2010): in *Macquarie Generation v. Hodgson*, environmental activists brought a suit against a State-owned power company, seeking a declaratory judgment that one of their power stations had been emitting CO_2 into the atmosphere in a manner that had harmed or was likely to harm the environment in contravention of section 115 (1) of the Protection of the Environment Operations Act 1997. The defendant's motion for summary dismissal was denied. The court found that even if the defendant had an implied authority to emit a certain amount of CO_2 in generating electricity under its licence, that authority was limited to an amount that had reasonable regard and care for people and the environment (*Macquarie Generation v. Hodgson*, [2011] NSWCA 424, paras. 35–67);

(g) Federal Court of Nigeria (2005): in *Gbemre v. Shell Petroleum Development Company of Nigeria Ltd and Others*, the Court ruled that oil companies must stop flaring gas in the Niger Delta. Jonah Gbemre, a representative of the Iwherekan community in the Niger Delta, filed suit against the Government of Nigeria and Shell. The Court held that the practice of gas flaring was unconstitutional as it violated the guaranteed fundamental rights to life and dignity of persons provided for in the Constitution of Nigeria and the African Charter on Human and Peoples' Rights (*Gbemre v. Shell Petroleum Development Company Nigeria Limited and Others* (2005) AHRLR 151 (NgHC 2005)).

The Special Rapporteur expresses his appreciation to Arnold Kreilhuber, Head of the International Environmental Law Unit, Division of Environmental Law, United Nations Environment Programme, for supplying the relevant information.

[41] See A. Cassese, "Modern constitutions and international law," *Collected Courses of The Hague Academy of International Law*, vol. 192 (Leiden, Martinus Nijhoff, 1985), pp. 331–475.

[42] Yuji Iwasawa, "Domestic application of international law", *Collected Courses of The Hague Academy of International Law*, vol. 378 (2015), pp. 9–262.

standards are being met. Thus, for example, if a treaty imposes an obligation on States to reduce CO_2 emissions to a specified level (e.g., a 6 per cent reduction compared with 1990 emission levels), States are under an obligation to maintain this emission level by all means, which should be ensured by national legislation.[43]

15. Among the obligations ascribed to States under the present draft guidelines, the obligation to protect the atmosphere (draft guideline 3) and the obligation to cooperate (draft guideline 8) belong to the first category of obligations, while the obligation to ensure that an environmental impact assessment is carried out (draft guideline 4) probably belongs to the second category. The obligations referred to in the present draft guidelines are illustrative and the minimum to protect the atmosphere. Of course, States are required to implement other obligations that they have entered into under the relevant conventions and customary international law. It should also be recalled that, in implementing these obligations, States should take into consideration the situations of the most vulnerable people affected.

B. Failure to implement obligations and the responsibility of States

16. International law relating to the protection of the atmosphere has thus recognized the primary obligations of States, which leads to the question of secondary rules of State responsibility.[44] It is undeniable today that there is an "obligation" on States not to cause environmental harm, as confirmed by the *Trail Smelter* Arbitration of 1938 and 1941, which remains to this day the leading case in this regard. In an oft-cited passage, the Tribunal concluded: "under the principles of international law ... no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties of persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence".[45] It should be noted, however, that a violation of these obligations does not automatically lead to the question of the "responsibility" of States. Failure to implement obligations by a State may entail the responsibility of

[43] Shinya Murase, "Perspectives from international economic law on transnational environmental issues", *Collected Courses of The Hague Academy of International Law*, vol. 253 (1995), pp. 283–431, at pp. 419–420, reproduced in Shinya Murase, *International Law: An Integrative Perspective on Transboundary Issues* (Tokyo, Sophia University Press, 2011), pp. 1–127, at pp. 113–114.

[44] Malgosia Fitzmaurice, "International responsibility and liability", in *The Oxford Handbook of International Environmental Law*, Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds. (Oxford, Oxford University Press, 2007), pp. 1011–1035. While the 2013 understanding (see *Official Records of the General Assembly, Sixty-fifth Session, Supplement No. 10* (A/68/10), para. 168) indicates that the topic will refrain (but without prejudice to) from dealing with the "liability of States and their nationals", it may be recalled that, however the understanding may be interpreted, the question of State "responsibility" is not excluded. The difference between liability and responsibility is well understood in the Commission, as it is in the Sixth Committee: while liability is for "activities not prohibited by international law" (lawful activities), responsibility is for "internationally wrongful acts". It may be noted that, at the 2017 meeting of the Sixth Committee, the delegation of South Africa reiterated its position that the "draft guidelines must deal with the issue of responsibility in an appropriate manner, possibly drawing on the body of international law on State responsibility to identify principles on responsibility that would be particularly helpful in guiding States in the field of atmospheric pollution and degradation" (*Official Records of the General Assembly, Seventy-second session*, 24th meeting (A/C.6/72/SR.24), para. 18).

[45] See the Special Rapporteur's first report (A/CN.4/667), para. 43; and *Reports of International Arbitral Awards*, vol. III (United Nations publication, Sales No. 1949.V.2), pp. 1905–1982 (Award of 1941), at p. 1965.

that State if the failure is tantamount to a breach of obligations. The 2001 articles on the responsibility of States for internationally wrongful acts provide, in article 1, that: "Every internationally wrongful act of a State entails the international responsibility of that State", and in article 2 that: "There is an internationally wrongful act of a State when conduct consisting of an action or omission: (a) is attributable to the State under international law; and (b) constitutes a breach of an international obligation of the State." In order to establish that there was a breach of an obligation, it is necessary first to clearly identify the author State for its wrongful act as well as the recipient State. In the context of transboundary atmospheric pollution, it would be possible to prove, as a matter of causality, where the pollution came from (the source of the damage), and who the recipients of the damage were. The question of responsibility could not arise in the absence of proven damage or risk.[46]

17. Unlike transboundary atmospheric pollution, it is difficult, if not impossible, to identify, in the context of global atmospheric degradation, such as climate change, which States are responsible for the causes of the alleged damage. In the case of atmospheric degradation, some writers assert that there is "collective responsibility" (of developed industrial States or of large emitting States), but this concept is not yet established in current international law and practice. The notion of "responsibilities" (in the plural) in the phrase "common but differentiated responsibilities" may refer to a certain burden that developed States should bear, but it does not address the responsibility (in the singular) in the sense of "State responsibility".

18. It may be a necessary reminder that the work of the Commission on this topic seeks to establish a cooperative framework for atmospheric protection, instead of seeking to mould "shame and blame" matrices under a regime of State responsibility in international law. International cooperation is at the core of the current project.[47] From that perspective, a failure to implement the obligations may be better dealt with by an alternative mechanism to seeking to penalize a State for a breach of its obligations. Instead, facilitating compliance through rendering assistance to non-complying States may better serve the objective of the present draft guidelines on the protection of the atmosphere (see section III).

C. Extraterritorial application of national law

19. Nation States are increasingly asserting jurisdiction and control over activities that occur extraterritorially. Extraterritorial application of national law may be permitted in certain circumstances in which there are legitimate legal grounds to justify it.[48] In some instances, however, it can cause political tension and legal uncertainty, as the principles of jurisdiction under international law may not

[46] Phoebe Okowa, "Responsibility for environmental damage", *Research Handbook on International Environmental Law*, Malgosia Fitzmaurice, David M. Ong and Panos Merkouris, eds. (Cheltenham, Edward Elgar, 2010), pp. 303–319, at p. 312; See also, Phoebe N. Okowa, *State Responsibility for Transboundary Air Pollution in International Law* (Oxford, Oxford University Press, 2000), pp. 171–202.

[47] See the Special Rapporteur's second report (A/CN.4/681), sect. VI.

[48] There are four principles by which extraterritorial jurisdiction can be asserted: the objective territoriality principle, the passive personality principle, the protective principle and the universality principle. The judgment of the Permanent Court of International Justice in the *S.S. "Lotus"* case is seen in part as a precedent confirming the objective territoriality principle (*P.C.I.J., Series A*, No. 10, 1927, p. 19), which is also most pertinent in the context of anti-trust law. See Shinya Murase, "Unilateral measures and the concept of opposability in international law", in *Thesaurus Acroasium*, Kalliopi Koufa, ed. (Athens, Sakkoulas, 1999), pp. 397–454, reproduced in Murase, *International Law: An Integrative Perspective* (see footnote 43 above), at pp. 247–248.

adequately resolve competing claims. This section considers in some detail the principles of jurisdiction and the mechanisms by which jurisdictional restraint can be achieved under international law. In the field of anti-trust law, where the question of extraterritoriality has been most frequently discussed, there seems to be a trend to emphasize consideration of "comity" and international cooperation in order to avoid confrontations among States.[49] This should be instructive in the present discussion on the issue of extraterritorial application of national environmental law relating to atmospheric protection.

World Trade Organization *Gasoline* case

20. It is well known that, in the context of trade and environment in the General Agreement on Tariffs and Trade (GATT), the Panel decisions on *Tuna-Dolphin* cases (GATT 1991, 1994) stated, referring to the United States Marine Mammal Protection Act, which was applied to protect dolphins outside the territory of the United States, that such extra-jurisdictional application of a national law by the United States was not consistent with article XX of GATT.[50] In the same vein, the *Gasoline* case[51] was concerned with the measures that involved an extraterritorial application of the United States Clean Air Act and the related regulations. The Appellate Body suggested that the United States should have entered into negotiations for an amicable solution of the dispute: "reference may be made to a number of precedents that the United States (and other countries) have considered it prudent to use to help overcome problems confronting enforcement agencies by virtue of the fact that the relevant law and the authority of the enforcement of the agency does not hold sway beyond national borders. During the course of the oral hearing, attention was drawn to the fact that in addition to the antidumping law ... there were other US regulatory laws of this kind, *e.g.*, in the field of anti-trust law, securities exchange law and tax law".[52]

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[49] The *ALCOA* ruling (*United States v. Aluminum Co. of America*, United States Court of Appeals for the Second Circuit, 1945, 148 F. 2nd 416, 443) was the classic case of the so-called "effects doctrine" in the anti-trust law field, which can be considered as a modification of the objective territoriality principle. The judgment was essentially that a State may exercise jurisdiction based on "effects" in the State, when the effect or intended effect is "substantial" and the exercise of the extraterritorial jurisdiction is "reasonable" (American Law Institute, *Restatement of the Law, Third: Foreign Relations of the United States*, vol. 2, sect. 905, p. 380 et seq.). Lacking in any territorial link, however, the effects doctrine was severely criticized outside the United States, which led to a certain change in the jurisprudence of the American courts afterwards. The judgments of the *Timberlane Lumber Co. v. Bank of America N.T. & S.A.* (549 F. 2nd 597, 9th Cir., 1976; 574 F. Supp. 1453, N.D. Cal. 1983) and *Mannington Mills, Inc. v. Congoleum Corp.* (595 F 2nd 1287, 3rd Cir. 1979) cases are notable examples in which the American courts demonstrated self-restraint based on the reasonable test. The emphasis was clearly on "enlightened self-interest" and "comity", based on the principle of non-interference and reciprocity (Karl M. Meessen, "Anti-trust law, international", in *Encyclopedia of Public International Law*, vol. 1, R. Bernhardt, ed. (Amsterdam, North Holland, 1992), pp. 183–191; and Jürgen Basedow, "Antitrust or competition law, international", in *The Max Planck Encyclopedia of Public International Law*, R. Wolfrum, ed. (Oxford, Oxford University Press, 2012), pp. 450–458).

[50] GATT, Panel report, *United States — Restrictions on Imports of Tuna*, DS21/R-39S/155, 3 September 1991 (Tuna-Dophin-I, not adopted), paras. 5.27–5.29; GATT, Panel report, *United States — Restrictions on Imports of Tuna*, DS29/R, 16 June 1994 (Tuna-Dophin II, not adopted), para. 5.32.

[51] WTO, Appellate Body report, *United States — Standards of Reformulated and Conventional Gasoline*, WT/DS2/AB/R, 20 May 1996.

[52] Ibid., see footnote 52 of the Appellate Body report.

European Court of Justice *Air Transport Association* case

21. The judgment of the European Court of Justice on 21 December 2011, in the case *Air Transport Association of America and Others v. Secretary of State for Energy and Climate*,[53] affirmed the validity of the inclusion of aviation activities in the European Union emissions trading scheme within Directive 2008/101/EC. The entry into force on 1 January 2012 of the European Union Aviation Directive, covering not only European Union airlines but also non-European Union airlines entering and leaving European Union airspace, was an extraterritorial application of the Directive and therefore gave rise to international tensions. Although the European Court of Justice considered the emissions trading scheme compatible with international law and aviation agreements, it was considered that the Aviation Directive might still be challenged as violating international law in other forums, such as the World Trade Organization (WTO).[54] Faced with heated criticism from non-European countries, the European Union has since temporarily suspended the application of the emissions trading scheme to flights to or from non-European countries (Decision No. 377/2013/EU and Regulation (EU) No. 421/2014),[55] pending the implementation of global market-based measures adopted by the Assembly of the International Civil Aviation Organization in the form of a new carbon offsetting and reduction scheme for international aviation, scheduled to enter into force on a voluntary basis in 2021 and in a mandatory second phase from 2027 onwards (ICAO resolution A39-3).[56]

Singaporean Transboundary Haze Pollution Act 2014

22. A State occasionally resorts to extraterritorial application of its national law when it considers that the relevant treaty is not sufficiently effective to deal with the stated objective.[57] For example, the 2003 Agreement on Transboundary Haze Pollution of the Association of Southeast Asian Nations (ASEAN), notwithstanding its significant achievement of establishing a collaborative scheme, lacked adequate regulatory provisions to prevent haze pollution in the region. The ASEAN Agreement is an agreement that aims to promote cooperation among ASEAN member States to prevent

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[53] Judgment of the Court (Grand Chamber), 21 December 2011, Case C-366/10, *European Court Reports 2011*; J. Meltzer, "Climate change and trade — The EU Aviation Directive and the WTO", *Journal of International Economic Law*, vol. 15, No. 1 (2012), pp. 111–156; Lorand Bartels, "The WTO legality of the application of the EU emissions trading system to aviation", *European Journal of International Law*, vol. 23, No. 2 (2012), pp. 429–467; Alejandro Piera Valdes, *Greenhouse Gas Emissions from International Aviation: Legal and Policy Analysis* (The Hague, Eleven International Publishing, 2015).

[54] See the Special Rapporteur's fourth report (A/CN.4/705 and Corr. 1), para. 30.

[55] The European Union has thus limited its application of its directives to flights within the European Economic Area. See: https://ec.europa.eu/clima/policies/transport/aviation_en.

[56] Tanveer Ahmad, "Environmental law: emissions", in *Routledge Handbook of Aviation Law*, Paul S. Dempsey and Ram S. Jakhu, eds. (London, Routledge, 2017), pp. 195–251.

[57] See Murase, *International Law: An Integrative Perspective* (footnote 43 above), pp. 53–73. The ASEAN Agreement entered into force on 25 November 2003 (http://haze.asean.org/status-of-ratification). To date, all the ASEAN member States are parties, since Indonesia, the last ASEAN member State, ratified the Agreement on 14 October 2014. It may not be necessary to resort to extraterritorial application of a national law, since the same objective can be achieved by applying the Agreement, which would normally be more desirable. However, if the measures contemplated under the Act extend beyond the scope of the Agreement, that part of the measures may be considered either as opposable or non-opposable in view of the legitimacy and effectiveness of the measures in question. See Murase, "Unilateral measures" (footnote 48 above). The Special Rapporteur expresses his gratitude to Zhang Maoli for drafting a substantial part of this section.

and monitor transboundary haze resulting from land and/or forest fires (article 2).[58] Nonetheless, it has been pointed out that the ASEAN Agreement has several weaknesses.[59]

23. In enacting the Transboundary Haze Pollution Act, Singapore expressed the view that it would complement the efforts, including the ASEAN Agreement, of other States in combating transboundary haze pollution. As explained by the then-Singaporean Minister of the Environment and Water Resources, Vivian Balakrishnan, before Parliament, "this legislation will make it an offence for any entity — Singaporean or non-Singaporean — to cause or to contribute to transboundary haze pollution in Singapore". He continued that: "This Bill is not intended to replace the laws and enforcement actions of other countries, but it is to complement the efforts of other countries to hold companies to account."[60]

24. The Act aims to regulate the conduct of entities, corporations and individuals causing or contributing to haze pollution in Singapore by penalizing offences and establishing civil liability.[61] Both the Agreement and the Act target smoke from land and/or forest fire,[62] though the Act includes a slightly different formula, "lighting fires outdoors for or in connection with any farming operation or forestry operation and

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[58] See also article 4 on general obligations. See also Shawkat Alam and Laely Nurhidayah, "The international law on transboundary haze pollution: what can we learn from the Southeast Asia region?", *Review of European, Comparative and International Environmental Law*, vol. 26 (2017), pp. 243–254.

[59] The weaknesses pointed out by some authors are as follows: first, the ASEAN Agreement does not contain a legal enforcement mechanism for non-compliance; second, it does not address the root causes of forest fires and haze pollution; third, it does not forbid certain types of conduct or contain a precise obligation clause; fourth, the burden of implementation, compliance and enforcement is on member States; fifth, it has a feeble monitoring mechanism for measuring compliance. See Laely Nurhidayah, Zada Lipman and Shawkat Alam, "Regional environmental governance: an evaluation of the ASEAN legal framework for addressing transboundary haze pollution", *Australian Journal of Asian Law*, vol. 15, No. 1 (2014), pp. 1–17.

[60] Note the statement of Vivian Balakrishnan, articulating the rationale of the Transboundary Haze Pollution Bill, as follows: "Given the very strong economic incentives today for companies to adopt the cheapest methods of clearing land for plantations, we need to tilt the playing field in favour of companies that do the right and responsible thing, and deter the companies that do the wrong and irresponsible thing. We must not allow companies to ignore the environmental and health impacts of their actions. Our transboundary haze pollution legislation will add to the slate of deterrence measures by enabling us to hold these companies accountable for their irresponsible behaviour and will send the signal that we will not tolerate such misconduct" (Parliament of Singapore, *Official Reports*, No. 12, Session 2, 4 August 2014, paras. 5–6). Available at www.mewr.gov.sg/news/opening-speech-by-dr-vivian-balakrishnan--minister-for-the-environment-and-water-resources--for-the-second-reading-of-the-transboundary-haze-pollution-bill.

[61] See sect. 5 (offences for causing, etc. haze pollution in Singapore) and sect. 6 (civil liability for causing, etc., haze pollution in Singapore) of part II (liability for transboundary haze pollution) of the Act. Sect. 9 of part III (administration) states: "the Director-General may, if he thinks it necessary or expedient to prevent, reduce or control any haze pollution in Singapore, give a preventive measures notice to any entity that, in his opinion, is directly or indirectly involved in any conduct which is causing or contributing to, or is likely to cause or contribute to, any haze pollution in Singapore."

[62] ASEAN Agreement, part I (general provisions), art. 1 (use of terms), para. 6. "'Haze pollution' means smoke resulting from land and/or forest fire which causes deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment." "'Land and/or forest fires' means fires such as coal seam fires, peat fires and plantation fires" (ibid., para. 7).

leaving unattended such fires".[63] There are also differences in the measures to be taken under the Agreement and the Act. The Agreement imposes measures for "controlled burning" and "zero burning policy" to prevent haze pollution,[64] requiring the fulfilment of information sharing,[65] assessment,[66] education and awareness building,[67] standard operating procedures[68] and technical cooperation.[69] In addition, when facing an emergency, it creates a joint emergency response mechanism to request, render and accept assistance.[70] In contrast, the Act provides, apart from a preventive measures notice issued by the Director General, for punitive measures, such as fines,[71] imprisonment,[72] warrant to secure[73] and warrant to arrest,[74] which are included in order to ensure its strict implementation.

25. It is significant to note that, while under the Agreement, each State Party is required to take measures within its territory, the Act refers to "haze pollution in Singapore", which means "pollution of the environment in Singapore comprising any poor air quality episode involving smoke from any land or forest fire wholly outside Singapore".[75] It may also be noted that, concerning the causality between the fire and the haze pollution in Singapore, the Act resorts to presumption rather than requiring strict causation. Thus, when there is haze pollution in Singapore and at or about that time there is a land or forest fire on any land situated outside Singapore, and the resulting smoke is proved to be moving toward Singapore, there is a presumption of involvement.[76]

26. Moreover, the Agreement and the Act adopt different definitions and geographic ranges of haze pollution. Under the Agreement, "haze pollution" means smoke resulting from land and/or forest fire that causes deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment.[77] "Transboundary haze pollution" means haze pollution the physical origin of which is

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[63] Singapore Act, part I (preliminary), sect. 2 (interpretation): "'conduct which causes or contributes to any haze pollution in Singapore' includes lighting fires outdoors for or in connection with any farming operation or forestry operation and leaving unattended such fires".

[64] ASEAN Agreement, part I (general provisions), art. 1 (use of terms), para. 3: "'Controlled burning' means any fire, combustion or smouldering that occurs in the open air, which is controlled by national laws, rules, regulations or guidelines and does not cause fire outbreaks and transboundary haze pollution." "'Zero burning policy' means a policy that prohibits open burning but may allow some forms of controlled burning" (ibid., para. 14).

[65] ASEAN Agreement, part II (monitoring, assessment, prevention and response), arts. 5, 6 and 7.

[66] Ibid., art. 8 (assessment).

[67] Ibid., art. 9 (prevention).

[68] Ibid., art. 10 (preparedness).

[69] Ibid., part III (technical co-operation and scientific research) includes measures to maintain a list of experts from within and outside of the ASEAN region for the purposes of relevant training, education and awareness-raising campaigns, a list of equipment and technical facilities.

[70] Ibid., part II (monitoring, assessment, prevention and response), arts. 11–15.

[71] Singapore Act, part III (administration), sect. 9 (preventive measures notice to prevent, reduce or control haze pollution).

[72] Ibid., sect. 10 (power to obtain information) and part III (administration), sect. 14 (penalty for obstructing Director General or authorized officer in his duty).

[73] Ibid., part III (administration), sect. 11 (power to examine and secure attendance, etc.).

[74] Ibid., part IV (miscellaneous), sect. 17 (notice to attend court).

[75] Ibid., sect. 2.

[76] Ibid., part II (monitoring, assessment, prevention and response), sect. 8 (presumptions).

[77] ASEAN Agreement, part I (general provisions), art. 1 (use of terms), para. 6: "'Haze pollution' means smoke resulting from land and/or forest fire which causes deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment."

situated wholly or in part within the area under the national jurisdiction of one member State and which is transported into the area under the jurisdiction of another member State.[78] Each member State is under an obligation to prevent such transboundary pollution within its territorial jurisdiction. Under the Act, haze pollution is determined by the air quality index. "Haze pollution in Singapore" means pollution of the environment in Singapore comprising any poor air quality episode involving smoke from any land or forest fire wholly outside Singapore.[79] A poor air quality episode occurs when (a) the air quality index for any part of Singapore reaches the prescribed number on the index or higher; and (b) for the next 24 hours or longer, the air quality index for the same part or any other part of Singapore remains at or reaches that number so prescribed or higher.[80] The aim of this legislation is said to be to send a strong deterrent signal and to hold companies accountable for their actions. Thus, the Act covers any conduct or thing outside Singapore that causes or contributes to haze pollution in Singapore, thus warranting the extraterritorial application of the Act.[81]

27. It was explained by the then-Singaporean Minister of the Environment and Water Resources before Parliament that: "Because we are addressing transboundary haze pollution, an extra-territorial approach is necessary for the law to be effective. This exercise of extra-territorial jurisdiction under the Bill is in line with international law, specifically *the objective territorial principle*."[82] The Act allows the Singaporean National Environment Agency to prosecute foreign companies and individuals that cause severe air pollution in Singapore, extending its reach beyond the jurisdiction of Singapore in a (potentially) highly intrusive manner.

28. It appears that, the extraterritorial application of the Act was not, at least publicly, objected to by Indonesia at the time of its enactment, as the President of Indonesia, Joko Widodo, reportedly expressed support for the Act, although with the caveat that the sovereignty of Indonesia must be respected.[83] However, the severe haze pollution that Singapore experienced in 2015 made the issue explicit. In September and October 2015, preventive measures notices, pursuant to section 9 of the Act, were issued to six Indonesia-based companies, requesting them to (a) deploy firefighting personnel to extinguish or prevent the spread of any fire on land owned or occupied by them; (b) discontinue, or not commence, any burning activities on such land; and (b) submit to the National Environment Agency any plan of action to extinguish any fire on such land or to prevent its recurrence.[84] Securing cooperation has, however, proven difficult, with the Government of Singapore reporting in April 2016 that only two firms had replied. On 11 May 2016, the Agency obtained a court warrant to secure the attendance of an unnamed director of one of the four companies that did not reply, and who had earlier failed to attend an interview with the Agency while he was in the country. This drew a strong reaction from Indonesia, which issued a diplomatic protest on 12 May 2016.[85]

29. When assessing the legal situation, it should be borne in mind that, since 2005, Singapore has offered haze assistance packages to Indonesia every year to help it

[78] Ibid., para. 13.

[79] Singapore Act, part I (preliminary), sect. 2 (interpretation).

[80] Ibid.

[81] Ibid., part I (preliminary), sect. 4 (extraterritorial application).

[82] See footnote 60 above (emphasis added).

[83] Ryan Nicholas Hong, "Singapore's Transboundary Haze Pollution Act and the shield of sovereignty in Southeast Asia", *Singapore Law Review*, vol. 34 (2016), at pp. 105–106.

[84] Factsheet issued by the Agency: www.nea.gov.sg/docs/default-source/corporate/COS-2016/ep1--updated---cos-2016-media-factsheet---thpa-and-green-procurement.pdf.
See also www.straitstimes.com/asia/se-asia/app-affirms-no-deforestation-pledge-amid-scepticism.

[85] Hong, "Singapore's Transboundary Haze Pollution Act" (see footnote 83 above), at pp. 117–118.

actively manage its fires. In 2015, Singapore deployed a Chinook helicopter with the necessary equipment to fight haze-related fires to Indonesia from 10 to 24 October 2015. Singapore has also been providing high-resolution satellite images of fires and related the information to Indonesia to aid its firefighting efforts.[86]

30. Thus, States resort to extraterritorial application of their national environmental law in order to fill the gaps of the relevant treaties. Such extraterritorial application in international law may be said to be neither entirely legal nor entirely illegal. It could be said to be opposable to the State (Indonesia) to which the national law (of Singapore) is applied extraterritorially. The notion of opposability has been employed by the International Court of Justice in several of its judgments, when the applicable law is lacking or undergoing change, with its legal effect being provisional and limited to the parties concerned.[87]

31. Pursuant to the above, the following draft guideline is proposed:

Draft guideline 10: Implementation

1. **States are required to implement in their national law the obligations affirmed by the present draft guidelines relating to the protection of the atmosphere from atmospheric pollution and atmospheric degradation. National implementation takes the forms of legislative, administrative and judicial actions.**

2. **Failure to implement the obligations amounting to breach thereof entails the responsibility of States under international law, if the actions or omissions are attributable to the States and the damage or risk is proven by clear and convincing evidence.**

3. **States should also implement in good faith the recommendations contained in the present draft guidelines.**

4. **The extraterritorial application of national law by a State is permissible when there is a well-founded grounding in international law. It should be exercised with care, taking into account comity among the States concerned. The extraterritorial enforcement of national law by a State should not be exercised in any circumstance.**

III. Compliance

32. Compliance is more than the correspondence of behaviour with legal rules, and different theories of international law lead to significantly different concepts of compliance.[88] As indicated above (para. 10), while the term "implementation" refers to measures that States take to make treaty provisions effective in national law, the term "compliance" refers here to mechanisms or procedures at the level of international law to determine whether States in fact adhere to the provisions of the

[86] See the Agency's factsheet (footnote 84 above).

[87] Murase, "Unilateral measures" (see footnote 48 above).

[88] Edith Brown Weiss, ed., *International Compliance with Nonbinding Accords*, Studies in Transnational Legal Policy, No. 29 (Washington, D.C., American Society of International Law, 1997). See "Introduction", ibid., pp. 1–20; and Benedict Kingsbury, "The concept of compliance as a function of competing conceptions of international law", ibid., pp. 49–80. The Special Rapporteur wishes to express his deep gratitude to Osamu Yoshida and Masayuki Hiromi for their contribution to this section of the present report.

treaty and to the implementing measures that they have instituted.[89] Multilateral environmental agreements relating to the protection of the atmosphere have extensively incorporated non-compliance mechanisms and procedures, and the present section will examine their significance by surveying their modalities.[90]

A. Breach versus non-compliance

33. There is a fundamental difference between "breach" and "non-compliance" in relation to international obligations. A "breach" of international law by a State entails its international responsibility,[91] which may be realized either through recourse to dispute settlement procedures or, in certain circumstances, by taking unilateral countermeasures against a non-performing party.[92] Since State responsibility is based on an objective conception of "breach" of international law,[93] it does not and cannot take into account the subjective reasons for such a breach,[94] although they may in some cases constitute circumstances precluding wrongfulness or extenuation. In contrast, the concept of "non-compliance" aims at an amicable solution. It is the basic idea underlying the concept of "compliance" that failure by a State to comply with an international obligation may not be due to a lack of willingness to comply, but rather due to a lack of capacity to deal with the situation for reasons such as technical or financial difficulties.[95] In this context, it is designed to "assist" non-complying States in returning to compliance, not necessarily to incriminate for non-compliance.[96] Its primary objective is to provide, within a multilateral context, encouragement to States to comply with their obligations and, in the event of non-compliance, to provide a "softer" system to address non-compliance than that afforded by traditional dispute settlement procedures, such as the recognition of State responsibility and the

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[89] Edith Brown Weiss and Harold Jacobson, eds., *Engaging Countries* (see footnote 37 above), "A framework for analysis", pp. 1–18, at p. 4.

[90] See, in general, Murase, *International Law: An Integrative Perspective* (see footnote 43), pp. 115–116 and 173–174; Jan Klabbers, "Compliance procedures", in *The Oxford Handbook of International Environmental Law*, Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds. (Oxford, Oxford University Press, 2007), pp. 996–1009; Gerhard Loibl, "Compliance procedures and mechanisms", in *Research Handbook of International Environmental Law*, Malgosia Fitzmaurice, David M. Ong and Panos Merkouris, eds. (Cheltenham: Edward Elgar, 2010), pp. 426–449; and Sands and Peel, *Principles of International Environmental Law* (footnote 35 above), pp. 163–167.

[91] James Crawford, *The International Law Commission's Articles on State Responsibility: Introduction, Text and Commentaries* (Cambridge, United Kingdom, Cambridge University Press, 2002), p. 77, para. (1).

[92] Martti Koskenniemi, "Breach of treaty or non-compliance? Reflections on the enforcement of the Montreal Protocol", *Yearbook of International Environmental Law*, vol. 3 (1992), p. 125.

[93] Crawford, *The International Law Commission's Articles on State Responsibility* (see footnote 91 above), p. 84, para. (10).

[94] Koskenniemi, "Breach of treaty or non-compliance?" (see footnote 92 above), p. 126. The term "breach" contains a certain culpable element of condemnation (ibid., p. 145).

[95] Abram Chayes and Antonia Handler Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Cambridge, Massachusetts, Harvard University Press, 1995), p. 10; and Malgosia Fitzmaurice, "Environmental compliance control", in *The Max Planck Encyclopedia of Public International Law*, Rüdiger Wolfrum, ed. (Oxford, Oxford University Press, 2012), vol. III, pp. 541–542, para. 2.

[96] M. Fitzmaurice and C. Redgwell, "Environmental non-compliance procedures and international law", *Netherlands Yearbook of International Law*, vol. XXXI (2000), pp. 35–65, at p. 39; and O. Yoshida, *The International Legal Régime for the Protection of the Stratospheric Ozone Layer* (The Hague, Kluwer Law International, 2001), pp. 178–179.

enforcement of reparations. This concept of "compliance" is derived from, among others, the principle of cooperation,[97] as affirmed in draft guideline 8.[98]

34. Non-compliance procedures have been widely adopted in multilateral environmental agreements relating to the protection of the atmosphere, including the following: the Convention on Long-range Transboundary Air Pollution and its subsequent Protocols,[99] the Montreal Protocol on the Substances that Deplete the Ozone Layer,[100] the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention),[101] the Kyoto Protocol to the United Nations Framework Convention on Climate Change,[102] and the Paris Agreement under the United Nations Framework Convention on Climate Change.[103]

B. Forms of non-compliance mechanisms

35. There are generally two major approaches to non-compliance in the practice of multilateral environmental agreements relating to the protection of the atmosphere: the facilitative/promotional approach and the coercive/enforcement approach. These two approaches are sometimes combined to supplement each other. However, there is a basic difference in the philosophy of each, with the facilitative approach stressing the importance of rendering assistance to a non-complying party, whereas the

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[97] Koskenniemi, "Breach of treaty or non-compliance?" (see footnote 92 above), p. 127.

[98] See annex. See, also, the second report of the Special Rapporteur (A/CN.4/681), pp. 36–47, paras. 60–77.

[99] See Tuomas Kuokkanen, "The Convention on Long-Range Transboundary Air Pollution", in *Making Treaties Work: Human Rights, Environment and Arms Control*, Geir Ulfstein, ed. (Cambridge, United Kingdom, Cambridge University Press, 2007), pp. 161–178; Tuomas Kuokkanen, "Practice of the Implementation Committee under the Convention on Long-Range Transboundary Air Pollution", in *Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academia*, Ulrich Beyerlin, Peter-Tobias Stoll and Rüdiger Wolfrum, eds. (Leiden, Martinus Nijhoff Publishers, 2006), pp. 39–51; Enrico Milano, "Procedures and mechanisms for review of compliance under the 1979 Long-Range Transboundary Air Pollution Convention and its Protocols", in *Non-Compliance Procedures and Mechanisms and the Effectiveness of International Environmental Agreements*, Tullio Treves and others, eds. (The Hague, T.M.C. Asser Press, 2009), pp. 169–180. See also Adam Byrne, "Trouble in the air: recent developments under the 1979 Convention on Long-Range Transboundary Air Pollution", *Review of European, Comparative and International Environmental Law*, vol. 26 (2017), pp. 210–219.

[100] United Nations, *Treaty Series*, vol. 1522, No. 26369, p. 3, and UNEP/OzL.Pro.4/15.

[101] United Nations, *Treaty Series*, vol. 1989, No. 34028, p. 309. Appendix V (post-project analysis) of the Convention provides, as one of its objectives: "Monitoring compliance with the conditions set out in the authorization or approval of the activity and the effectiveness of mitigation measures." See also decision 1997/2 (ECE/EB.AIR/53, annex III).

[102] United Nations, *Treaty Series*, vol. 2303, No. 30822, p. 162, and decision 24/CP.7 (FCCC/CP/2001/13/Add.3).

[103] FCCC/CP/2015/10/Add.1, annex.

enforcement approach considers that compliance can only be achieved by imposing a penalty for a breach of obligations by the non-complying State.[104]

1. Montreal Protocol

36. The most significant model of the non-compliance procedure was the one established under article 8 of the Montreal Protocol. Pursuant to this provision, the fourth Meeting of the Parties in 1992 established the Implementation Committee and approved the non-compliance procedure.[105] It was agreed, in particular, that the procedure should be "cooperative, non-confrontational and conciliatory".[106] Thus, the indicative list of measures that the Meeting of the Parties might take in cases of non-compliance, which was adopted in decision IV/5 of the fourth Meeting of the Parties, includes "(a) appropriate assistance, including assistance for the collection and reporting of data, technical assistance, technology transfer and financial assistance, information transfer and training".[107] In some cases in which the breach results from a lack of willingness to comply, however, the procedure is transmuted into something akin to traditional dispute settlement procedures for establishing a breach and adopting sanctions, which would include the measures: "(b) issuing cautions" and "(c) suspension. These punitive measures may be taken in accordance with the applicable rules of international law concerning suspension of the operation of the treaty, of specific rights and privileges under the Protocol ... including those concerned with industrial rationalization, production, consumption, trade, transfer of technology, financial mechanism and institutional arrangements." Nevertheless, the approach of the procedure is generally focused on assistance. The model established under the Montreal Protocol significantly influenced later multilateral environmental agreements, as well as some older agreements that subsequently established non-compliance procedures.[108] In this sense, the practice of non-compliance

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[104] See, Jacob Werksman, "Compliance and the Kyoto Protocol: building a backbone into a 'flexible' regime", *Yearbook of International Environmental Law*, vol. 8, No. 1 (1998), pp. 48–101. This reminds us of the philosophical debate in ancient China on human nature between Mencius (372–289 B.C.) who asserted that human nature was fundamentally "good" and Xun Zi (313–238 B.C.) who considered it fundamentally "evil". In international law, States are generally considered "evil" in the sense that they would not comply with international law unless they are forced to do so under the threat of penalty, namely, under the law of State responsibility, reparation and sanction, while in international environmental law, States are considered "good" as far as they are the parties to the relevant multilateral environmental agreement, which provides "assistance" rather than imposes a "penalty" for non-compliance.

[105] Decision IV/5 (UNEP/OzL.Pro.4/15), para. 56, and annex IV, para. 5. On the negotiation process of the non-compliance procedure of the Montreal Protocol, see Yoshida, *The International Legal Regime* (footnote 96 above), pp. 177–180.

[106] Francesca Romanin Jacur, "The non-compliance procedure of the 1987 Montreal Protocol to the 1985 Vienna Convention on Substances that Deplete the Ozone Layer", in *Non-Compliance Procedures and Mechanisms and the Effectiveness of International Environmental Agreements*, Tullio Treves and others, eds. (The Hague, T.M.C. Asser Press, 2009), pp. 11–31, at p. 15.

[107] UNEP/OzL.Pro.4/15, annex V; Koskenniemi, "Breach of treaty or non-compliance?" (see footnote 92 above), pp. 123–162; Laurence Boisson de Chazournes, "La mise en œuvre du droit international dans le domaine de la protection de l'environnement: enjeux et défies", *Revue générale de droit international public*, No. 1 (1995), pp. 62–67; Feja Lesniewska, "Filling the holes: the Montreal Protocol's non-compliance mechanisms", in *Research Handbook on International Environmental Law*, Malgosia Fitzmaurice, David M. Ong and Panos Merkouris, eds. (Cheltenham, Edward Elgar, 2010), pp. 471–489.

[108] Pierre-Marie Dupuy and Jorge E. Viñuales, *International Environmental Law* (Cambridge, United Kingdom, Cambridge University Press, 2015), p. 285.

procedure under the Montreal Protocol has been generally assessed as having been most successful in facilitating compliance.[109]

37. To date, instances of punitive measures for non-compliance by non-article 5 parties (special situation of developing countries) are rare, except for the case of the Russian Federation.[110] For the developing countries[111] that satisfy the conditions laid down in article 5, the Implementation Committee has maintained a facilitative/promotional approach in most non-compliance cases, even after 1999 when the grace period for developing countries ended.[112] Most cases relate to a failure to report consumption data by developing countries due to the lack of financial and technical capacity. In such cases, on the recommendation of the Committee, the Meeting of the Parties took decisions urging the parties to report expeditiously and giving advice on how to improve reporting.[113]

38. Numerous cases of non-compliance with obligations to reduce and phase out ozone depleting substances were brought in relation to States with economies in

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[109] David G. Victor, "The operation and effectiveness of the Montreal Protocol's non-compliance procedure", in *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice*, David G. Victor, Kal Raustiala and Eugene B. Skolnikoff, eds. (Cambridge, Massachusetts, MIT Press, 1998), pp. 137–176. From its 7th meeting (1995) to 29th meeting (2017), the Meeting of the Parties of the Montreal Protocol has adopted 154 decisions on non-compliance with respect to 72 State parties (18 were non-article 5 parties), the European Union and 8 groups of parties (2 of which are non-article 5 parties). In 114 decisions, the Meeting of the Parties used both assistance and caution to lead non-compliant parties to return to compliance. See http://ozone.unep.org/en/handbook-montreal-protocol-substances-deplete-ozone-layer/26960.

[110] In 1994, at the 6th Meeting of the Parities, the Russian Federation and several other States made a statement that they might fail to meet their obligations concerning the phasing out of ozone depleting substances under the Protocol, due in part to economic and other domestic problems. The Implementation Committee treated the Russian statement as a "submission" and therefore considered the non-compliance procedure to be triggered by a self-accusation of non-compliance. The Committee sought to agree on an approach to respond to non-compliance with the Russian Federation, but did not reach complete agreement. Even though the Russian Federation did not agree with the entire draft decision and demanded a formal vote, the Meeting of the Parties adopted trade restrictions against the Russian Federation, imposing a ban on the trade in ozone depleting substances. It was asserted by the Russian Federation that the Meeting of the Parties had abused its discretion by deciding on such coercive/enforcement measures as trade restrictions without exhausting the other facilitative/promotional measures envisaged in the indicative list. See decision VII/18 and paras. 128–129 in UNEP/OzL.Pro.7/12. See Jacob Werksman, "Compliance and transition: Russia's non-compliance tests the ozone regime", *Heidelberg Journal of International Law*, vol. 56 (1996), pp. 750–773; and Jacur, "The non-compliance procedure of the 1987 Montreal Protocol" (see footnote 106 above), at pp. 31–32. Another decision on non-compliance is decision XXIII/26, in which the Meeting of the Parties decided that the European Union was not in compliance with articles 4 and 5.

[111] Decision I/12E of the 1st Meeting of the Parties decided on the list of developing countries. The Meeting of the Parties subsequently added Turkey (decision III/5), Georgia (decision VIII/29), Moldova (decision IX/26), South Africa (decision IX/27), Kyrgyzstan (decision XII/11), Armenia (decision XIV/2), Turkmenistan (decision XVI/39) and Cyprus (decision XVII/2) as developing countries. Slovenia (decision XII/12), Malta (decision XVI/40), Romania (decision XIX/19) and Croatia (decision XXV/16), which had been recognized as developing countries, were taken off the list at their own request.

[112] Jacur, "The non-compliance procedure" (see footnote 110 above), at p. 31.

[113] Decision XIII/16 (UNEP/OzL.Pro.13/10, pp. 41–42). See, also, K. Madhava Sarma, "Compliance with the multilateral environmental agreements to protect the ozone layer", in *Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academia*, Ulrich Beyerlin, Peter-Tobias Stoll and Rüdiger Wolfrum, eds. (Leiden, Martinus Nijhoff Publishers, 2006), p. 34.

transition. After the additional technical and financial assistance was granted by the Multilateral Fund and the Global Environmental Facility, the situation of non-compliance improved.[114] To date, there seem to be no cases in which parties are deprived of assistance or are suspended from benefiting from the rights and privileges under the Protocol, although the Meeting of the Parties, in accordance with recommendations by the Implementation Committee, has recently cautioned that it would take such coercive measures if the non-complying State could not return to a situation of compliance by the facilitative measures rendered.

2. Kyoto Protocol

39. In contrast, the Kyoto Protocol adopted both facilitative and enforcement approaches, seemingly placing more emphasis on the latter. Article 18 of the Protocol provides that, in establishing non-compliance procedures and mechanisms: "Any procedures and mechanisms ... entailing binding consequences shall be adopted by means of an amendment to this Protocol." Thus, it was initially understood that, since the authority to impose coercive measures would certainly entail binding consequences, establishment of such measures would not be possible without an amendment to the Protocol. However, what was adopted at the first session of the Conference of the Parties serving as the meeting of the parties of the Kyoto Protocol in Montreal in 2005 was mainly the "hard" enforcement approach by applying sanctions to the non-complying developed countries.[115] The earlier decision of the seventh session of the Conference of the Parties at Marrakesh in 2001 (decision 24/CP.7) provided for the level of reduction/limitation of greenhouse gas emissions to be deducted from the second commitment period for those non-complying annex-I (industrialized) countries. The rate of deduction was set at 1.3 times the amount in tonnes of the emissions that had failed to be in compliance in the first commitment period, the sanction to be applied by the Enforcement Branch.[116] Thus, the Enforcement Branch would have to deal with two possible situations of

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[114] UNEP/OzL.Pro.16/17. See also UNEP/OzL.Pro.13/10.

[115] Shinya Murase, "International lawmaking for the future framework on climate change: a WTO/GATT model", in *International Law: An Integrative Perspective on Transboundary Issues* (Tokyo, Sophia University Press, 2011), at pp. 173–174; Olav Schram Stokke, Jon Hovi and Geir Ulfstein, eds., *Implementing the Climate Regime: International Compliance* (London, Earthscan, 2005); Geir Ulfstein and Jacob Werksman, "The Kyoto compliance system: towards hard enforcement", ibid., pp. 39–62; Ronald B. Mitchell, "Flexibility, compliance and norm development in the climate regime", ibid., pp. 65–83; Rüdiger Wolfrum and Jürgen Friedrich, "The Framework Convention on Climate Change and the Kyoto Protocol", in Ulrich Beyerlin, Peter-Tobias Stoll and Rüdiger Wolfrum, eds., *Ensuring Compliance with Multilateral Environmental Agreements: A Dialogue between Practitioners and Academia* (Leiden, Martinus Nijhoff Publishers, 2006), pp. 53–68; Sabrina Urbinati, "Procedures and mechanisms relating to compliance under the 1997 Kyoto Protocol to the 1992 United Nations Framework Convention on Climate Change", in *Non-Compliance Procedures and Mechanisms and the Effectiveness of International Environmental Agreements*, Tullio Treves and others, eds. (The Hague, T.M.C. Asser Press, 2009), pp. 63–84; Jutta Brunnée, "Climate change and compliance and enforcement processes", in *International Law in the Era of Climate Change*, Rosemary Rayfuse and Shirley V. Scott, eds. (Cheltenham, Edward Elgar, 2012), pp. 290–320.

[116] There were serious problems that should be pointed out about the Kyoto Protocol's non-compliance mechanism: clearly, the establishment and jurisdiction of the Enforcement Branch fell under the "binding consequences", which entailed "amendment" of the Protocol in accordance with its article 18. Second, the same is true of the penalty of 1.3 times the non-complying emissions, which comprises a matter of "binding consequences". It is also clear that a decision of the Conference of the Parties cannot be equated with an "amendment" of the Protocol, which requires ratifications by the parties. Murase, *International Law: An Integrative Perspective* (see footnote 43 above), pp. 173–174.

non-compliance and their consequences. First, non-compliance with the emission reduction commitment under article 3, paragraph 1, of the Protocol, which results in the 1.3 times reduction in the assigned amount for the second commitment period. Second, the non-compliance of national systems designed to estimate greenhouse gases emissions under article 5, paragraph 1, and the preparation and submission of the information relating to national implementation required under article 7 of the Protocol, which results in the suspension of the eligibility of participation in the Kyoto Mechanisms under articles 6 (joint implementation), 12 (clean development mechanism) and 17 (emissions trading). The former enforcement mechanism was, however, never implemented because there was no second commitment period under the Kyoto Protocol, as it was replaced by the Paris Agreement of 2015.

40. In the practice of the Compliance Committee of the Kyoto Protocol to date, the Enforcement Branch has addressed a number of cases, while the Facilitative Branch, tasked with addressing issues of potential non-compliance before they fall under the remit of the Enforcement Branch, has largely remained unused.[117] All of those cases were concerned with non-compliance and the procedural obligations under article 5, paragraph 1, and article 7.[118] The case of Greece was the first case in which the Enforcement Branch considered non-compliance. The Enforcement Branch finally confirmed, on 17 April 2008, that Greece had not complied with its obligations under article 5, paragraph 1, and article 7 of the Protocol and found "Greece ... to be in non-compliance".[119] On this basis, it directed Greece to "develop a plan referred to in paragraph 1 of section XV and submit it within three months" and, significantly, decided that, in the meantime, Greece was "not eligible to participate in the [emission trading] mechanisms under Articles 6, 12 and 17 of the Protocol pending the resolution of the question of implementation".[120] Greece submitted a (revised) compliance plan on 27 October 2008, and the matter was finally resolved on 13 November 2008 when the Enforcement Branch decided to grant it eligibility to participate in the Kyoto mechanisms.[121] However, the lifting of the suspension of rights and privileges was criticized as it was decided without any explicit determination as to the binding nature of the Compliance Committee's decision.[122] When coercive/enforcement measures, rather than promotional/facilitative measures, are taken in cases of non-compliance, the legally binding nature of the decisions adopted by the Compliance Committee is decisive for non-complying States in order to induce compliance.

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[117] Meinhard Doelle, "Compliance and enforcement in the climate change regime", in *Climate Change and the Law*, Erkki J. Hollo, Kati Kulovesi and Michael Mehling, eds. (Springer, 2013), pp. 165–188, at p. 172. When South Africa, on behalf of the Group of 77 and China, submitted a question on implementation to the Compliance Committee for consideration by the Facilitative Branch in 2006, the Branch was not able to make a decision to proceed with the matter (see document with reference CC-2006-1-1/FB, available from www.unfccc.int).

[118] Although, in the case of Ukraine, the Enforcement Branch decided to consider its non-compliance with article 3, paragraph 1, the Branch could not, as a matter of substance, determine whether Ukraine was in fact in compliance with its commitment. See Compliance Committee, final decision on Ukraine, dated 7 September 2016 (document with reference CC-2016-1-6/Ukraine/EB, available from www.unfccc.int).

[119] Compliance Committee, final decision on Greece, dated 17 April 2008 (CC-2007-1-8/Greece/EB, available from www.unfccc.int), para. 18 (a).

[120] Ibid., para. 18 (b) and (c).

[121] Compliance Committee, final decision on Greece, 13 November 2008 (CC-2007-1-13/Greece/EB, available from www.unfccc.int).

[122] Dupuy and Viñuales, *International Environmental Law* (see footnote 108 above), p. 288.

41. The case concerning the non-compliance of Canada with the national registry requirements under article 7 of the Protocol indicated that introducing adversarial elements, such as sanctions, into the system are highly undesirable. While Canada publicly stated its intention not to meet its emission reduction target by the end of 2012,[123] non-compliance with emissions targets was not an issue that could come before the Enforcement Branch. Although the Enforcement Branch finally decided not to proceed further with the question of implementation relating to compliance with article 7,[124] the possibility of enforcement was one of the reasons for Canada to withdraw from the Protocol itself. The practice of the Enforcement Branch reveals that, in cases in which non-compliance leads to sanctions, parties might show reluctance to commit to more ambitious actions, and, even worse, they might decide not to join the agreement at all. For that reason, the non-compliance mechanisms introduced for multilateral environmental agreements after the Protocol are largely of a facilitative/promotional nature.[125]

3. Paris Agreement

42. It is significant that the Paris Agreement has returned to the facilitative/promotional approach. While the draft agreement of November 2015, prepared by the Ad Hoc Working Group on the Durban Platform for Enhanced Action, suggested an option that would have reintroduced bifurcated compliance mechanisms with a coercive/enforcement approach for developed country parties and a facilitative/promotional approach for developing country parties (option 1 of art. 11), such an option has finally been discarded.[126] Accordingly, there is no enforcement branch in the Paris Agreement. The provision on compliance in the Paris Agreement was, therefore, carefully drafted, and what was finally to become article 15 thereof provides as follows: "1. A mechanism to facilitate implementation of and promote compliance with the provisions of this Agreement is hereby established. 2. The mechanism referred to in paragraph 1 of this Article shall consist of a committee that shall be expert-based and facilitative in nature and function in a manner that is transparent, non-adversarial and non-punitive. The committee shall pay particular attention to the respective national capabilities and circumstances of Parties." Thus, it is stressed that the mechanism to be established should be facilitative, non-adversarial and non-punitive.[127] Although such a compliance mechanism is weaker than that of the Kyoto Protocol, since no enforcement is foreseen, it could

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[123] The Turning the Corner plan, introduced by the Stephen Harper Government and announced by Environmental Minister John Baird on 26 April 2007, according to which Canada would reduce its greenhouse gas emissions by 20 per cent by 2020, implied that Canada would fail to meet its Kyoto Protocol targets.

[124] Compliance Committee, decision not to proceed further, dated 15 June 2008 (CC-2008-1-6/Canada/EB, available from www.unfccc.int).

[125] Nils Goeteyn and Frank Maes, "Compliance mechanisms in multilateral environmental agreements: an effective way to improve compliance?", *Chinese Journal of International Law*, vol. 10 (2011), pp. 791–826, at pp. 804–805.

[126] "Draft agreement and draft decision on workstreams 1 and 2 of the Ad Hoc Working Group on the Durban Platform for Enhanced Action: work of the ADP contact group", 6 November 2015. Available from www.unfccc.int. On the negotiation history of a compliance arrangement in the Paris Agreement, see Christina Voigt, "The compliance and implementation mechanism of the Paris Agreement", *Review of European Community and International Environmental Law*, vol. 25, No. 2 (2016), at pp. 162–164.

[127] Daniel Bodansky, "The Paris Climate Change Agreement: a new hope?", *American Journal of International Law*, vol. 110, No. 2 (2016), pp. 288–319; Daniel Bodansky, Jutta Brunnée and Lavanya Rajamani, *International Climate Change Law* (Oxford, Oxford University Press, 2017), p. 246.

prove more effective because the Kyoto Protocol's compliance mechanism has been regarded as impeding ambitious implementation of and participation in the treaty.[128] Although the first session of the Conference of the Parties serving as the meeting of the parties to the Paris Agreement in Bonn in 2017 decided that the modalities and procedures of the compliance mechanism would continue to be developed, the Ad Hoc Working Group on the Paris Agreement,[129] which is requested to prepare draft elements, emphasized that the measures envisaged to be taken by the Compliance Committee should be facilitative and non-punitive in nature.[130]

43. Thus, based on an analysis of the foregoing, the following draft guideline is proposed:

Draft guideline 11: Compliance

1. **States are required to effectively comply with the international law relating to the protection of the atmosphere in accordance with the rules and procedures of the relevant multilateral environmental agreements.**

2. **For non-compliance, facilitative and/or enforcement approaches may be adopted, as appropriate.**

3. **Facilitative measures include providing assistance to non-complying States in a transparent, non-adversarial and non-punitive manner to ensure that those States comply with their international obligations by taking into account their capabilities and special conditions.**

4. **Enforcement approaches include issuing a caution of non-compliance, termination of rights and privileges under the relevant multilateral environmental agreements and other forms of sanctions. These measures should be adopted only for the purpose of leading non-complying States to return to compliance.**

IV. Dispute settlement

A. Forms of peaceful settlement of disputes

44. The difference and relationship between non-compliance and dispute settlement (see para. 33 above) have been explained above. While both are mechanisms that aim to ensure realization of international obligations, non-compliance procedures, set in the framework of multilateral environmental agreements, are intended to induce and facilitate compliance in contrast to dispute settlement, which is normally an adversarial and confrontational system set in bilateral relations between disputing States (though, occasionally, the disputes could be of a multilateral character because

[128] Anik Kohli, "Making sense of transparency and review in the Paris Agreement," *Yearbook of International Environmental Law*, vol. 26 (2015), pp. 46–67, at pp. 47 and 62. It can also be seen as being more consistent with the bottom-up approach embedded in the Paris Agreement.

[129] The twenty-first session of the Conference of Parties to the Convention in Paris in 2015, through para. 103 of decision 1/CP.21, requested the Ad Hoc Working Group to develop modalities and procedures for the effective operation of the Compliance Committee. These were adopted by the Conference of the Parties serving as the meeting of the parties to the Paris Agreement.

[130] "Draft elements for APA agenda item 7: modalities and procedures for the effective operation of the committee to facilitate implementation and promote compliance referred to in Article 15.2 of the Paris Agreement — Informal note by the co-facilitators", final version, 13 November 2017. Available at http://unfccc.int/files/na/application/pdf/apa_7_informalnote_final_version.pdf.

of the interventions of third States (articles 62 and 63 of the statute of the International Court of Justice)).

45. As a conflict between States develops into a dispute,[131] international law requires that it should be settled by peaceful means, as provided for in Article 33, paragraph 1, of the Charter of the United Nations, namely, through negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement or resorting to regional agencies or arrangements.[132] Thus, all disputes relating to the protection of the atmosphere should be settled by any one of these methods. This catalogue of solutions reflects a progression of techniques from non-formal to formal procedures.[133] The unwillingness of States to concede control over disputes results in international environmental law disputes being addressed through non-legal means, particularly negotiation. States will sometimes seek, or be offered, the assistance of a third party to act as a mediator between the States in dispute. States may seek a more formalized role for a third party in the form of conciliation or inquiry/fact-finding, without committing themselves to legal determination. Fact-finding may be crucial in some environmental disputes that are of a fact-intensive character requiring reliable scientific findings. A regional arrangement, such as the Asia-Pacific Partnership on Clean Development and Climate,[134] may be found useful in allowing interaction among States in relation to a specific issue requiring settlement, which is consistent with a shared interest in addressing common problems. Dispute settlement forums established through multilateral environmental agreements have become increasingly important.[135] Compared with non-judicial modes of dispute settlement, arbitration and adjudication normally entail the application of legal rules, a determination of responsibility/liability and an outcome that is legally binding on the parties involved. Referral of a dispute to a court or tribunal may be preferable when non-judicial routes have not been successful. States may find adjudication or arbitration to be a useful opportunity to establish responsibility, causation and reparation/compensation, and through which to articulate and possibly develop the substantive norms of international environmental law.[136]

46. It should be stressed that there are also close interactions between non-judicial and judicial means of settling disputes. In the context of disputes relating to the environment and to the protection of the atmosphere, in particular, even at the stage of initial negotiations, States are often required to be well equipped with scientific evidence on which their claims are based, and accordingly that the distance between negotiation and judicial settlement may not be very far. While the following section of the present report is focused on the question of scientific evidence in judicial settlement, its discussion is no doubt an extremely important question in the context of non-judicial methods of settling disputes (including negotiation), as well.

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[131] John Collier and Vaughan Lowe, *The Settlement of Disputes in International Law: Institutions and Procedures* (Oxford, Oxford University Press, 1999), pp. 1–5.

[132] Christian Tomuschat, "Article 33", in *The Charter of the United Nations: A Commentary*, vol. I, 2nd ed., Bruno Simma, ed. (Munich, Verlag C.H. Beck, 2002), pp. 583–594.

[133] Natalie Klein, "Settlement of international environmental law disputes", *Research Handbook of International Environmental Law*, Malgosia Fitzmaurice, David M. Ong and Panos Merkouris, eds. (Cheltenham, Edward Elgar, 2010), pp. 379–400.

[134] See https://aric.adb.org/initiative/asia-pacific-partnership-on-clean-development-and-climate.

[135] Cesare P.R. Romano, "International dispute settlement", *The Oxford Handbook of International Environmental Law*, Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds. (Oxford, Oxford University Press, 2007), at pp. 1039–1042.

[136] Klein, "Settlement of international environmental law disputes" (see footnote 133 above), p. 387.

B. Features of judicial settlement of disputes relating to the protection of the atmosphere

1. International Court of Justice and scientific evidence[137]

47. The Commission has placed emphasis on scientific input in the progressive development of international law relating to the protection of the atmosphere, which has led to holding dialogue sessions with scientists.[138] Likewise, the more science and technology advance, the more complicated scientific and technical issues are raised in the process of international dispute settlement. In recent years, the cases brought before the International Court of Justice have been increasingly focused on environmental law cases, which are fact-intensive, involving complicated scientific and technical evidence.[139] It has been a longstanding tradition for the Court to keep a passive stance in matters of fact-finding, and dealing with highly technical issues has been no exception. Thus, for example, the Court has never appointed its own experts in accordance with Article 50 of its statute since the 1949 *Corfu Channel* case and the 1984 *Gulf of Maine* case, until it appointed, after a long interval, its own expert in the

[137] The Special Rapporteur expresses his deep appreciation to Mariko Fukasaka for having provided the draft for this section of the present report.

[138] See footnote 1 above. See also Shinya Murase, "Scientific knowledge and progressive development of international law: with reference to the ILC topic on the protection of the atmosphere", in *The International Legal Order: Current Needs and Possible Responses: Essays in Honour of Djamchid Momtaz*, James Crawford and others, eds. (Leiden, Brill Nijhoff, 2017), pp. 41–52.

[139] See President Ronnie Abraham's speech before the Sixth Committee on 28 October 2016 (on international environmental law cases before the International Court of Justice) (available at www.icj-cij.org/files/press-releases/0/19280.pdf); and President Peter Tomka, "The ICJ in the service of peace and justice — words of welcome by President Tomka", 29 September 2013 (available at www.icj-cij.org/files/press-releases/8/17538.pdf). See also, Shabtai Rosenne, "Fact-finding before the International Court of Justice", in *Essays on International Law and Practice* (Leiden, Martinus Nijhoff Publishers 2007), at p. 237; Eduardo Valencia-Ospina, "Evidence before the International Court of Justice", *International Law Forum du droit international*, vol. 1, No. 4 (1999), pp. 202–207; Anna Riddell, "Scientific evidence in the International Court of Justice — problems and possibilities", *Finnish Yearbook of International Law*, vol. 20 (2009), pp. 229–258; Bruno Simma, "The International Court of Justice and scientific expertise", *American Society of International Law, Proceedings of the 106th Annual Meeting* (2012), pp. 230–233; Gillian White, "The use of experts by the International Court", in *Fifty Years of the International Court of Justice: Essays in Honour of Sir Robert Jennings*, Vaughan Lowe and Malgosia Fitzmaurice, eds. (Cambridge, United Kingdom, Cambridge University Press, 1996); Anna Riddell and Brendan Plant, *Evidence Before the International Court of Justice* (London, British Institute of International and Comparative Law, 2009), chap. 9; D. Peat, "The use of court-appointed experts by the International Court of Justice", *British Yearbook of International Law*, vol. 84 (2014), pp. 271–303; James Gerard Devaney, *Fact-finding before the International Court of Justice* (Cambridge, United Kingdom, Cambridge University Press, 2016); Caroline E. Foster, *Science and the Precautionary Principle in International Courts and Tribunals: Expert Evidence, Burden of Proof and Finality* (Cambridge, United Kingdom, Cambridge University Press, 2011); special edition on courts and tribunals and the treatment of scientific issues, *Journal of International Dispute Settlement*, vol. 3, No. 3 (2012); Christian Tams, "Article 50" and "Article 51", in *The Statute of the International Court of Justice: A Commentary*, Andreas Zimmermann and others, eds. (Oxford, Oxford University Press, 2012), pp. 1287–1311; Caroline E. Foster, "New clothes for the emperor? Consultation of experts by the International Court of Justice", *Journal of International Dispute Settlement*, vol. 5 (2014), pp. 139–173; Jorge E. Viñuales, "Legal techniques for dealing with scientific uncertainty in environmental law", *Vanderbilt Journal of Transnational Law*, vol. 43 (2010), at pp. 476–480; Giorgio Gaja, "Assessing expert evidence in the ICJ", *The Law and Practice of International Courts and Tribunals*, vol. 15 (2016), pp. 409–418.

Maritime Delimitation (*Costa Rica v. Nicaragua*, pending as of December 2017) case. There has been, however, a noticeable change in the attitude of the Court in this regard. It is therefore necessary to trace this transformation by looking into recent Court cases involving the science-heavy issues of international environmental law, which certainly reflect, directly or indirectly, specific features of the judicial settlement of disputes relating to the protection of the atmosphere.

48. The importance of the issue of scientific evidence warrants a detailed examination of the following cases: *Gabčíkovo-Nagymaros* (1997), *Pulp Mills* (2010), *Whaling* (2014), *Aerial Herbicide Spraying* (withdrawn in 2013) *and Construction of a Road* (2015) cases. In the *Gabčíkovo-Nagymaros* case, the parties followed the traditional method of presenting the evidence, that is, by expert-counsel, though they were scientists and not lawyers. Their scientific findings were treated as the parties' assertions. The parties to the *Pulp Mills* case, which was in part relevant to the atmospheric environment, followed the same expert-counsel method, but this was strongly criticized by the Bench, as well as by commentators. Thus, in the *Whaling* case, the parties appointed independent experts, who were cross-examined and were treated with more weight than the statements of expert-counsel. In the following *Construction of a Road* case, the parties followed the practice of the *Whaling* case with party-appointed experts. In all of these cases, the Court did not appoint its own experts in accordance with Article 50 of its statute,[140] but it did so finally in the *Maritime Delimitation* case, as mentioned above, although the latter was not per se an environmental law dispute.

(a) *Gabčíkovo-Nagymaros* case (1997)

49. The *Gabčíkovo-Nagymaros* case arose from a joint project to construct major hydroelectric dams on the Danube River, i.e., the Barrage System, which was agreed between Hungary and Czechoslovakia in a treaty of 1977. The project was developed before the mid-1960s, but, afterwards, Hungary suspended and then abandoned some of the construction. In the meantime, as the negotiations failed, Czechoslovakia unilaterally proceeded to conduct an alternative provisional plan, known as Variant C: the operation of the Gabčíkovo sector without the Nagymaros sector, unilaterally damming and diverting the Danube on the territory of Czechoslovakia.[141] In reaction to this, Hungary proceeded to terminate the 1977 treaty by a declaration in 1992.[142] The dispute was then brought to the Court by a special agreement between Hungary and Slovakia (as the successor State to Czechoslovakia with regard to the dispute over the project) in 1993. The Court was asked three major questions: (a) whether Hungary was entitled to suspend and abandon the construction; (b) whether Czechoslovakia was entitled to proceed with Variant C, damming up the Danube on the territory of Czechoslovakia; and (c) what the legal effects of the notification by Hungary to terminate the 1977 treaty would be.

50. Two of the questions put to the Court — whether Hungary was entitled to abandon the construction and whether Variant C was legal — entailed considerations of highly technical factual issues: i.e., if the project and Variant C were environmentally harmful, causing a "state of ecological necessity", and if the project

[140] Art. 50 provides that: "The Court may, at any time, entrust any individual body, bureau, commission, or other organization that it may select, with the task of carrying out an inquiry or giving an expert opinion."

[141] *I.C.J. Pleadings 1994, Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, memorial of the Republic of Hungary, vol. 1, pp. 68–79.

[142] Ibid., pp. 79–87.

and Variant C were meant to protect and improve the environment in the first place. The technical side of the dispute was driven, in particular, by Hungary, which attempted to raise environmental issues as an essential part of its arguments. These technical issues, as described in Hungary's memorial, involved many scientific uncertainties; they also required interdisciplinary and extremely complicated studies in different technical fields, such as seismology, hydrology, hydrobiology, water chemistry, sediment transport, river morphology, soil sciences, forestry and biology.[143]

The parties' arguments on technical issues and the state of ecological necessity

51. Among other contentions, Hungary asserted that no adequate environmental impact assessment had been carried out for the original project before or after the 1977 treaty; that the studies before and after 1989 indicated that the original Barrage System might cause irreparable environmental damage; and that such a state of ecological necessity precludes wrongfulness of the actions (the suspension and abandonment of the construction) to avoid irreversible harm to an essential interest, i.e., the environment, under customary international law and the 1977 treaty. Hungary also contended that Variant C was unlawful, not only because it was markedly different from the original project but also because it caused significant damage to the environment of Hungary and violated the principle of the equitable use of transboundary natural resources.[144] For its part, Slovakia contended that the alleged environmental risk and damage threatened by the original project were not proven and not supported by impartial and scientific evidence, neither at the time of the suspension/abandonment of works by Hungary, nor when it purportedly terminated the 1977 treaty; that the best evidence available, including the actual implementation of the project in approximate form by means of Variant C, showed that the project was environmentally sustainable; that Hungary greatly exaggerated and invented the risks to its water supplies in order to prove the existence of ecological necessity; and that the inherent uncertainty in evaluating complex ecological matters was exaggerated by Hungary, in order to emphasize and prove the existence of risk, because it could prove no actual damage. Slovakia then concluded that the ecological necessity was unproven. Slovakia also contended that Variant C was meant to minimize the damages suffered as a result of the unlawful abandonment of the construction by Hungary. According to the argument, Variant C also enhanced the preservation of the environment, as the original project was meant to achieve.[145] Thus, the argument about a state of ecological necessity was the major issue before the Court, one that potentially required the Court's assessment of complex technical evidence and later became one of the central points in the Court's reasoning in its judgment. Both parties agreed on the legal standard for necessity, adopting the rules laid out in the articles on responsibility of States for internationally wrongful acts:

[143] Ibid., memorial of the Slovak Republic, para. 6.132; counter-memorial of the Republic of Hungary, para. 1.02; and *I.C.J. Pleadings 1995, Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, reply of the Republic of Hungary, vol. 1, paras. 6–7. *I.C.J. Pleadings 1994, Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, memorial of the Republic of Hungary, vol. 1, pp. 137–138; and counter-memorial of the Republic of Hungary, paras. 1.44–1.49.

[144] *I.C.J. Pleadings 1995, Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, reply of the Republic of Hungary, vol. 1, paras. 1.149, 2.106, 3.59 and 3.179.

[145] Ibid., reply of the Slovak Republic, vol. 1, paras. 3.21–3.30 and 3.106–3.117. *I.C.J. Pleadings 1994, Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, counter-memorial of the Slovak Republic, vol. 1, paras. 1.19–1.20.

"grave and imminent" danger to an "essential interest", which could not be averted by "other means".[146]

52. During both the written and oral pleadings, the Court faced difficult situations in which both parties challenged the impartiality or credibility of the other party's technical arguments/studies and they presented conflicting interpretations of technical information. An examination of the pleadings also illustrates the highly technical nature of the case and the level of complexity of the issues involved in the Court's deliberations to reach a decision. In order to support their respective arguments on technical issues, neither of the parties appointed independent experts to present evidence in the courtroom; instead, they hired experts as "advocates" or "counsel and experts" — following the tradition — as members of their respective teams.

53. The parties' conflicting contentions on these technical issues remained one of the focal points in this case throughout the three rounds of written pleadings, i.e., by exchanges of memorials[147] and counter-memorials of both parties[148] and scientific evaluation and scientific rebuttal, etc.[149] Since the scientists were not appointed independent experts to be addressed in the Court, there were not cross-examined and they were subject only to the regular questions from the judges to counsel.

The Court's treatment of technical issues

54. The issue of a state of necessity in effect formed a central point in the Court's judgment. This question entailed assessing whether the alleged environmental risks of the project constituted, as laid out by the Commission, a grave and imminent peril to an essential interest of Hungary, and whether the abandonment of the construction was the only means to safeguard that interest.[150] The Court also addressed the significance of scientific uncertainty, which Hungary referred to, in assessing the existence of peril.[151] The Court acknowledged that environmental concerns do constitute an essential interest.[152] However, the Court concluded that it was not necessary, in order to respond to the questions put to it, to determine which of those points of view was scientifically better founded: the Court assented to the assertions of Slovakia on almost every legal/factual point in relation to this issue.[153]

55. The Court considered the significance of uncertainty, stating that uncertainty itself could not establish the objective existence of a peril; even though peril evokes

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[146] *I.C.J. Pleadings 1994, Gabčikovo-Nagymaros Project (Hungary/Slovakia)*, reply of the Republic of Hungary, vol. 1, para. 3.21. See *Yearbook ... 2001*, vol. II (Part Two). The draft article on necessity provisionally adopted at the time of the proceedings of the *Gabčikovo-Nagymaros* case was draft article 33. However, in the final articles, adopted by Commission, it appears as draft article 25.

[147] *I.C.J. Pleadings 1994, Gabčikovo-Nagymaros Project (Hungary/Slovakia)*, memorial of the Republic of Hungary, vol. 1, paras. 5.01–5.140; and memorial of the Slovak Republic, vol. 1, paras. 5.01–5.67.

[148] Ibid., counter-memorial of the Republic of Hungary, vol. 1, para. 1.03; ibid., vols. 2 (scientific evaluation), 4 (scientific and technical annexes) and 5 (maps, figures, graphs and photos). *I.C.J. Pleadings 1995, Gabčikovo-Nagymaros Project (Hungary/Slovakia)*, reply of the Republic of Hungary, vol. 1, paras. 14–18; and vol. 2 (scientific rebuttal).

[149] *I.C.J. Pleadings 1995, Gabčikovo-Nagymaros Project (Hungary/Slovakia)*, reply of the Republic of Hungary, vol. 1, para. 21.

[150] *Gabčikovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997*, p. 7, at pp. 39–41, paras. 49–52.

[151] Ibid., para. 54.

[152] Ibid., para. 53.

[153] Ibid.

risk, which distinguishes it from material damage, it has to be duly established at the relevant point in time. The Court ultimately declared that none of the alleged risks constituted a peril, on the grounds that they did not meet the standard of "imminent", "grave" or "only means". Emphasizing that "the notion of necessity is ... deeply rooted in general *legal* thinking",[154] the Court's assessment apparently was based on legal reasoning. However, the Court's actual considerations in this matter were deeply related to the evaluation of scientific information produced by the parties. The Court concluded that the alleged perils were not imminent. The Court also pointed out that Hungary could have resorted to other means to respond to the apprehended dangers.[155]

56. The Court, however, proceeded to make an additional conclusion that "even if it had been established that there was ... a state of necessity", Hungary would not have been permitted to rely upon it in order to justify the failure to comply with the treaty obligations: as Hungary "had helped, by act or omission, to bring it about". The Court noted that Hungary was "presumably aware of the situation as then known, when it assumed its obligations under the Treaty" in 1977, since "[a]s can be seen from the material before the Court, a great many studies of a scientific and technical nature had been conducted" at an earlier time by both parties. This seems to be an overall evaluation of the parties' conflicting arguments concerning the sufficiency of the scientific studies conducted prior to the conclusion of the 1977 treaty.[156]

57. As a result, the Court seemed to have generally heeded the contention of Slovakia that the scientific evaluation of Hungary was based too much on uncertainty and constituted mere prediction. But the Court did so without giving any substantial, specific or technical explanation. In this case, the parties did not appoint experts to be examined in the Court and, despite the highly technical issues at hand, the Court did not appoint an expert under Article 50. In the decision on ecological necessity, the Court first of all emphasized how the concept was legal, rather than scientific; and expressly stated that it was not necessary to decide which of the parties' points of view was scientifically better founded. However, as a matter of fact, the Court did seem to have accepted the interpretations of Slovakia on most of the technical points and found the contentions of Hungary unproven, without explaining the assessment of the project's alleged potential environmental damages.

(b) *Pulp Mills* case (2010)

58. The *Pulp Mills* case originated in a dispute between Argentina and Uruguay over the granting by Uruguay of authorization to construct two pulp mills along the River Uruguay, which partly forms the boundary between the two States. In its application to the Court submitted in May 2006, Argentina claimed that Uruguay had violated the 1975 Statute agreed between the two Governments, under which the parties were supposed to "establish the joint machinery necessary for the optimum and rational utilization of the River".[157] The claim by Argentina was based on two grounds: first, a violation of the procedural obligation of prior notification and consultation and, second, a violation of the substantive obligation to adopt the necessary measures to preserve the environment and prevent pollution.[158] The latter issue involved highly

[154] Ibid., para. 50 (emphasis added).
[155] Ibid., para. 55.
[156] Ibid., para. 57.
[157] Statute of the River Uruguay (adopted on 26 February 1975), United Nations, *Treaty Series*, vol. 1295, No. 21425, p. 331, at p. 340, art. 1.
[158] *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Application Instituting Proceedings, paras. 24–25; and *I.C.J. Pleadings 2007, Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, memorial of Argentina, vol. I, para. 5.2.

technical/scientific matters, such as the assessment of water quality, the impact of effluent discharges, air emissions, biological diversity and the ecosystem. Neither of the parties called an independent expert under Article 51 of the statute. Instead, following the popular custom, both parties retained experts to join them as advocates: for Argentina, as scientific advisers and experts. In addition to the two rounds of pleadings, both parties submitted copious amounts of factual and scientific materials in support of their claims, including reports and studies prepared by the respective experts, which contained conflicting claims and conclusions.[159] These were all submitted as ex parte evidence, forming a part of the normal pleadings and evidential documents, supporting the respective party's arguments.

The parties' pleadings concerning the technical issues

59. The arguments developed in the written and oral pleadings reflect the highly technical nature of the case, raising similar issues concerning technical assertions as seen in the *Gabčíkovo-Nagymaros* case above. The central claim of Argentina was the breach by Uruguay of substantive obligations, namely to prevent pollution and to protect the quality of the waters of the River Uruguay and its ecosystem.[160] This claim was based on chapter X of the 1975 Statute, entitled "Pollution", which obligates the parties to "protect and preserve the aquatic environment and, in particular, to prevent its pollution".[161] In the 1975 Statute, "pollution" was defined as "the direct or indirect introduction by man into the aquatic environment of substances or energy which have harmful effects".[162] Argentina defined "pollution" as any discharges liable to affect the quality of the river's waters, including the river's ecosystem, such as biological diversity. Based on this definition, Argentina contended that discharges from the Botnia mill constituted pollution, breaching its obligation to prevent it.[163] In so doing, Argentina claimed that Uruguay had failed to carry out a full and objective environmental impact assessment of the transboundary impact of the mill on the environment of the river and the areas affected by it; it had failed to employ the best available techniques to prevent pollution.[164] Refuting this claim, Uruguay argued that the premise of Argentina, that discharges from the Botnia mill to the river would constitute pollution, was wrong. This, in turn, invalidated the substance of the arguments by Argentina on the use of the best available techniques, the siting of the plant, the adequacy of the environmental impact assessment, the protection of biodiversity and the equitable and reasonable use of the river.[165] In support of this argument, Uruguay contended that the 1975 Statute did not impose a categorical prohibition on discharges into the river and that the term "pollution" from the 1975 Statute must be interpreted in a such way that discharges constitute "pollution" only after they reach a certain level of seriousness.[166] Uruguay then concluded that Argentina had failed to meet the burden of proof regarding its claim that the discharge

[159] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, paras. 165–166.

[160] *I.C.J. Pleadings 2007, Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, memorial of Argentina, vol. I, para. 5.3.

[161] Art. 41 (a).

[162] Art. 40.

[163] *I.C.J. Pleadings 2007, Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, memorial of Argentina, vol. I, paras. 5.20–5.26.

[164] Ibid., paras. 5.54, 5.78 and 8.4.

[165] Ibid., counter-memorial of Uruguay, vol. I, para. 4.3.

[166] Ibid., para. 4.12.

from the Botnia mill would cause significant harm to the regime of the river or its water quality.[167]

60. The parties asserted conflicting arguments on the technical issues, and their respective evidence in many cases was contradictory. The focal point among the technical issues was that the parties contended different interpretations of the studies conducted by the International Finance Corporation of the World Bank, which formed the basis of the main evidence of Uruguay. The Corporation had approved a $170 million investment in the Botnia mill on the condition that it would "cause no environmental harm".[168] In an effort to prove its contention, Uruguay submitted, as a part of its counter-memorial, the findings of an extensive scientific study conducted by the Corporation, that is, the cumulative impact study, in which the Botnia mill had been evaluated.[169] For its part, Argentina refuted the Corporation's findings on all of the technical issues and asserted that the Corporation had not provided an adequate technical basis to satisfy the concerns about the environmental impact of the mill. It also argued that the Corporation's water quality criteria for an impact assessment based on dilution were inappropriate; the uncertainty concerning the environmental impact was not recognized; the effects of flow reversal were underrepresented; the water quality analysis of effluent discharges was not sufficient, etc.[170] Both parties continued their harsh criticism of the credibility of their opponent's experts in rebuttal and the second round written pleadings.[171]

61. There were a number of highly technical scientific issues disputed by the parties.[172] The issues that arose were complex, requiring the integration of atmospheric sciences, hydrology, biogeochemistry, zoology, ecology and ecotoxicology.[173] During the oral hearings, both of the parties refuted each other's experts' interpretations of the data — not as experts, but rather as counsel, supporting their party's respective arguments.[174]

The Court's treatment of technical issues

62. While the Court seems to have been well aware of the difficulty of the technical issues, it chose not to resort to any assistance that exists under the statute and rules of procedure. Referring to the issue of the experts' impartiality, the Court stressed that it "would have found it more useful had they [the experts] been presented by the Parties as expert witnesses under Articles 57 and 64 of the Rules of Court, instead of being included as counsel in their respective delegations".[175] The Court further stated

[167] Ibid., para. 4.4.

[168] Ibid., para. 5.1.

[169] Ibid. See, also, chap. 5 ("The conclusions of the International Finance Corporation and its independent experts").

[170] Ibid., memorial of Argentina, vol. I, para. 7.208.

[171] Ibid., counter-memorial of Uruguay, vol. I, chap. 6 ("The opinions of the experts retained by the parties"), paras. 5.5–5.48; *I.C.J. Pleadings 2008, Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, rejoinder of Uruguay, paras. 1.2, 4.3 and 4.59.

[172] *I.C.J. Pleadings 2008, Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, rejoinder of Uruguay, paras. 4.88, 6.29 and 6.61; and, ibid., reply of Argentina, para. 3.8.

[173] Public sitting held on Wednesday 16 September 2009, at 10 a.m. (available at www.icj-cij.org/files/case-related/135/135-20090916-ORA-01-00-BI.pdf), p. 37, para. 1.

[174] Public sitting held on Monday 14 September 2009, at 10 a.m. (available at www.icj-cij.org/files/case-related/135/135-20090914-ORA-01-00-BI.pdf), p. 46, para. 23; and public sitting held on Thursday 2 October 2009, at 3 p.m. (available at www.icj-cij.org/files/case-related/135/135-20091002-ORA-01-00-BI.pdf), p. 31, para. 43.

[175] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 72, para. 167.

that those persons who provide evidence before the Court should testify as experts, "so they may be submitted to questioning by the other party as well as by the Court".[176] In his Separate Opinion, Judge Greenwood strongly emphasized the importance of distinguishing these different kinds of expert, "[t]he distinction between the evidence of a witness or expert and the *advocacy* of counsel is fundamental to the proper conduct of litigation before the Court",[177] as they owe different duties to the Court. He further stated that for a person to offer his expert opinion on scientific data to address the Court as counsel or expert-counsel would be to "circumvent" the provisions of the rules under which testimonial experts could be questioned by the other party and the Court: it would unacceptably "blur the distinction between evidence and advocacy".[178] Since such a practice was "both unhelpful to the Court and unfair to the other party", he thus stressed that he was pleased that "the Court [had] unequivocally indicated that such a practice should not be repeated in future cases".[179]

63. As for the impartiality of the Corporation, while the Court acknowledged that there was a difference of opinion concerning the Corporation's probative value, it simply stated that "the Court does not find it necessary in order to adjudicate the present case to enter into a general discussion on the relative merits, reliability and authority of the documents and studies prepared by the experts and consultants of the Parties. It needs only to be mindful of the fact that ... it is the responsibility of the Court, after having given careful consideration to all the evidence placed before it by the Parties, to determine which facts must be considered relevant, to assess their probative value, and to draw conclusions from them as appropriate." The Court then concluded that, "in keeping with its practice, the Court will make its own determination of the facts, on the basis of the evidence presented to it".[180] As stated above, the evidence included extensive studies of pulp mill operations data from both sides, which each interpreted the data differently. The Court, however, disregarded the arguments regarding the authority of the expert evidence and drew its own conclusions on the facts. Referring to the different interpretations of the data provided by the experts appointed by the parties and the parties themselves, the Court stated: "in assessing the probative value of the evidence placed before it, the Court will principally weigh and evaluate the data, rather than the conflicting interpretations given to it by the Parties or their experts and consultants".[181] In its judgment, on the issue of the violation of the substantial obligation, the Court rejected almost every single major claim made by Argentina based on a lack of sufficient evidence or for being unproven, without explaining the probative value of the parties' respective evidence.[182]

64. The issue of the Court's methods of addressing technical evidence seemed to have caused a major confrontation among the judges: several judges criticized the Court for not exercising its rights under Article 50 and seeking expert opinion on its

[176] Ibid.

[177] Ibid., Separate Opinion of Judge Greenwood, para. 27.

[178] Ibid., citing Arthur Watts, "Enhancing the effectiveness of procedures of international dispute settlement", in *Max Planck Yearbook of United Nations Law*, vol. 5, Jochen A. Frowein and Rüdiger Wolfrum, eds. (The Hague, Kluwer Law International, 2001), pp. 29–30.

[179] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, Separate Opinion of Judge Greenwood, para. 28. See, ibid., Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, para. 6, in which a similar concern was expressed.

[180] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at pp. 72–73, para. 168.

[181] Ibid., para. 236.

[182] Ibid., paras. 178–264.

own.[183] In their extensive Joint Dissenting Opinion, Judges Al-Khasawneh and Simma stressed that the Court on its own was not in a position adequately to assess and weigh complex, technical or scientific evidence;[184] they stated that the Court should have appointed its own experts, or at least made use of the power to call upon the parties to produce evidence or explanation.[185] They also expressly criticized the Court's habit of using "*experts fantômes*" (ghost experts): based on the principle of good administration of justice, in an exceptionally technical and fact-intensive case like that one, adopting a passive method and deploying "*experts fantômes*" would deprive the Court of "transparency, openness, procedural fairness, and the ability for the Parties to comment upon or otherwise assist the Court in understanding the evidence before it".[186] They concluded that the Court's handling of scientific evidence was thus "deficient" and that by clinging to "the habits it traditionally followed" and willingly depriving itself of "the ability fully to consider the fact submitted to it", the Court had wasted an opportunity to establish itself as a body that could be entrusted with scientific or technical evidence.[187]

65. The problem was exemplified during the oral hearings, when certain judges tried to further clarify some factual points.[188] At the end of first round of hearings of Argentina, Judge Simma posed six questions: five directed to both parties and one to Uruguay.[189] All of those questions attempted to elucidate purely technical matters. Judge Cançado Trindade also pointed out in his Separate Opinion that the Court should have made use of assistance from an expert under Article 50 in order to ensure sufficient fact-finding.[190] Moreover, Judge Yusuf agreed with this criticism; his entire declaration addressed that problem.[191] Thus, an adversarial process by which the parties are able to comment on the Court's expert opinion would have provided the Court with further insight into the relevance and significance of the expert opinion and, furthermore, the use of the Court-appointed experts would enhance the confidence of the parties in the Court's technical evaluation of the scientific information they had submitted, thus ensuring transparency.[192] Following tradition, the parties resorted to expert-counsel; and the Court did not appoint experts under Article 50. The fact-finding in this case spurred commentators to express concern

[183] Ibid., Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, para. 2; ibid., Separate Opinion of Judge Cançado Trindade, para. 151; ibid., Declaration of Judge Yusuf, paras. 1 and 6.

[184] Ibid., Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, paras. 3–4.

[185] Ibid., paras. 7–13.

[186] Ibid., para. 14.

[187] Ibid., paras. 2–3, 13 and 17.

[188] Judge Simma, public sitting held on Thursday 17 September 2009, at 10 a.m. (available at www.icj-cij.org/files/case-related/135/135-20090917-ORA-01-00-BI.pdf), pp. 67–68; and Judge Bennouna, public sitting held on Tuesday 29 September 2009, at 10 a.m. (available at www.icj-cij.org/files/case-related/135/135-20090917-ORA-01-00-BI.pdf), p. 70.

[189] Public sitting held on Thursday 17 September 2009, at 10 a.m. (available at www.icj-cij.org/files/case-related/135/135-20090917-ORA-01-00-BI.pdf), pp. 67–68.

[190] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, Separate Opinion of Judge Cançado Trindade, paras. 148–151.

[191] Ibid., Declaration of Judge Yusuf, paras. 1–5.

[192] Ibid., para. 7. See also, ibid., Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, paras. 13–14.

over the Court's role in dealing with scientific evidence, and many echoed the judges' criticisms concerning the non-use of Court-appointed experts.[193]

(c) *Whaling* case (2014)

66. The *Whaling* case was also a highly fact-intensive and technical case, involving voluminous scientific evidence. The focal issue hinged on whether whaling by Japan was "scientific research" and whether a lethal method was necessary to meet its scientific objectives. In contrast to the *Gabčíkovo-Nagymaros* and *Pulp Mills* cases, both of the parties called independent expert(s) who were examined in open court. Australia claimed that whaling by Japan violated the obligations assumed by Japan under the International Convention for the Regulation of *Whaling*, which had been adopted by the International Whaling Commission.[194] Under the Convention, Japan was obliged to abandon any whaling for commercial purposes after 1986 ("the moratorium"),[195] as well as the commercial whaling of humpback and fin whales in the Southern Ocean Sanctuary.[196] In the meantime, immediately after the moratorium began, Japan launched the first (until 2005) and second (from 2005) phases of the Japanese Whale Research Programme under Special Permit in the Antarctic. These programmes enabled Japan to conduct whaling by referring to article VIII of the Convention, under which the parties may issue special permits to their nationals to kill, take and treat whales for the purposes of scientific research. The second phase of the programme involved taking three species of Antarctic minke whales, fin whales and humpback whales. In the meantime, several thousand tons of meat had been produced annually in the name of scientific whaling by Japan.[197]

The parties' arguments and appointment of experts

67. The arguments made by both parties illustrate the highly technical nature of the case. Australia argued that the whaling carried out by Japan under the second phase did not fall under scientific research as defined by the Convention.[198] To this end, Australia had appointed its expert to be later examined in the Court who concluded that the second phase failed to meet the qualification as a legitimate programme for the purposes of scientific research under article VIII: it did not utilize appropriate methods, since the lethal methods were unnecessary and ineffective to pursue its stated objectives; its sample size was fixed at an unprecedented scale without

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[193] Juan G. Sandouval Coustasse and Emily Sweeney-Samuelson, "Adjudicating conflicts over resources: the ICJ's treatment of technical evidence in the *Pulp Mills* case", *Goettingen Journal of International Law*, vol. 3, No. 1 (2011), pp. 447–471, at pp. 455–462; Cymie Payne, "Mastering the evidence: improving fact finding by international courts", *Environmental Law*, vol. 41, No. 4 (2011), pp. 1191–1220; Michael J. McDermott, "International environmental disputes and the need for court-commissioned independent experts", *Boston College International and Comparative Law Review*, vol. 34, E. Supp. 67 (2011), pp. 67–80; Makane M. Mbengue, "International courts and tribunals as fact-finders: the case of scientific fact-finding in international adjudication", *Loyola of Los Angeles International and Comparative Law Review*, vol. 34 (2011), pp. 53–80, at pp. 72–76; Foster, "New clothes for the emperor? (see footnote 139), pp. 140–146 and 164–172.

[194] *Whaling in the Antarctic (Australia v Japan)*, Application Instituting Proceedings, p. 2; and United Nations, *Treaty Series*, vol. 161, No. 2124, p. 72.

[195] International Convention for the Regulation of Whaling, art. V (1) (e); and art. 10 (e) of its Schedule.

[196] International Convention for the Regulation of Whaling, art. V (1) (c); and art. 7 (b) of its Schedule.

[197] *I.C.J. Pleadings 2011, Whaling in the Antarctic (Australia v Japan)*, memorial of Australia, vol. 1, para. 3.65.

[198] *Whaling in the Antarctic (Australia v Japan)*, Application Instituting Proceedings, p. 8, para. 11.

scientific justification and with no end date; and, furthermore, it scarcely attended to the potential adverse effects on the targeted whale stocks. For these reasons, "the potential of [the second phase] to bring new knowledge about the conservation and management of whales is very low, if indeed it exists at all".[199] Supported by this expert, Australia concluded that the whaling carried out by Japan under the second phase could be qualified as prohibited commercial whaling within the meaning of the Convention.

68. Japan, in replying to Australia in its counter-memorial, rebutted mainly the misunderstandings by Australia on three issues: the interpretation of the Convention's objective; the purpose, methods and scientific contribution of the second phase; and the interpretation of "scientific research" under article VIII, which was categorized by Japan as the focal point of the case.[200] In so doing, Japan argued that the second phase fell under the definition of "scientific research" stipulated in article VIII. In contrast to Australia, Japan developed these contentions as part of its usual arguments. Japan asserted that the purpose of the second phase was to collect scientific data that would contribute to "review" and "comprehensive assessment"; it was therefore not dictated by economic or commercial purposes.[201] As regards the methods of the second phase, Japan argued that it employed lethal as well as non-lethal methods, and the choice between them was not dependent on economic interest, but rather on the particular biological data being sought in order to pursue the objectives of the research. Regarding lethal methods, it argued that the sample sizes were calculated so that they were the minimum required to obtain statistically meaningful results to meet the research objectives, and ensure that the lethal samplings did not have an adverse effect on the status of the targeted species.[202]

69. Australia took special notice of the *Pulp Mills* case as regards the treatment of expert evidence. In its memorial, citing the *Pulp Mills* judgment, Australia confirmed that it had ensured that the authors of the reports attached to the memorial would be available to be examined by the Court as experts, complying with the Court's suggestion made in the said case, namely that the expert should appear as an independent person and be examined in Court. Australia eventually appointed two experts. Unlike Australia, Japan appointed only one expert to be examined in Court, who, however, did not provide an expert opinion in the counter-memorial.

70. During the oral pleadings, the experts of both sides were examined in Court. They were examined first by the party calling them, then cross-examined by the other party, and finally questioned by the Court. Apart from some arguments about the interpretation of the treaty texts, almost all arguments made by the parties depended upon the opinions given by the respective expert(s). The examination of them in open Court was therefore the most important phase of the proceedings. A good example of this phenomenon was seen during the cross-examination: one of the most heated discussions concerned whether the sample sizes for the three kinds of whales set during the second phase were appropriate. After giving a statement, the only expert called by Japan was cross-examined. He gave his opinion in the written statements as an expert of physiology, stating that the numbers provided by the Japanese scientists were "of

[199] *I.C.J. Pleadings 2011, Whaling in the Antarctic (Australia v Japan)*, memorial of Australia, vol. I, appendix 2, Marc Mangel, "An assessment of Japanese whale research programs under special permit in the Antarctic (JARPA, JARPA II) as programs for purposes of scientific research in the context of conservation and management of whales", para. 5.22.

[200] *I.C.J. Pleadings 2012*, counter-memorial of Japan, pp. 9–10, para. 25; pp. 20–22, paras. 59–61; and, on the "focal point", p. 21, para. 61.

[201] Ibid., p. 13, para. 33; and p. 294, para. 5.139.

[202] Ibid., pp. 13–14, para. 36.

the right order of magnitude" for many of the scientific questions to obtain a clear result within a period of six years; for other questions, the samples were "clearly too small".[203] He, however, stated: "the Japanese scientists have not always given completely transparent and clear explanations of how samples sizes were calculated".[204] This was an example of a decision-affecting opinion being disclosed during cross-examination, which apparently greatly influenced the deliberation of the Court.

71. The *Whaling* case also saw an unusually active examination by the Bench: the first expert for Australia was asked 11 questions by six different judges;[205] the second expert for Australia was asked 4 questions by three different judges;[206] and, finally, the only expert for Japan was asked 14 questions by six different judges.[207] These questions were asked in order to better understand the technical issues and discern the true reality of the situation behind the conflicting arguments and views, including issues such as the unexplained drastic change in sample size and how rare it is for researchers to use lethal methods in this field. The examination by the Court was also conducted in an interactive way; judges flexibly adjusted their questions according to the experts' replies. The other significant development was that — arguably for the first time in the Court's practice or at least as a rare practice — the judges were allowed to put questions to the experts without informing the President beforehand of their intention to do so. Allowing judges to put spontaneous questions was a pioneering development in the Court's practice and in contrast to article 61, paragraph 3, of the rules, which requires that the judges inform the President of their intention to put questions beforehand.

The Court's treatment of technical issues

72. It can be easily seen from the reasoning that the above scenes from the cross-examination had a great influence on the Court's judgment. The Court stated that a special permit under article VIII had to be interpreted in the light of the Convention's objective; neither a restrictive nor an expansive interpretation could be justified, and whether the killing, taking and treatment of whales pursuant to a requested special permit was for the purposes of scientific research could not depend simply on that State's perception.[208] The Court then proceeded to review the objective standard for scientific research and the phrase "for purposes of scientific research".[209] The Court acknowledged that the experts called by the parties did not agree on the conditions for the use of lethal methods as scientific research, while stressing that their conclusions as scientists "must be distinguished from the interpretation of the Convention, which is the task of this Court".[210] The Court, once again, thus emphasized that the issue was a matter of legal interpretation, rather than scientific factual consideration.

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[203] Lars Walloe, "Scientific review of issues raised by the memorial of Australia including its two appendices", statement of the expert appointed by Japan, p. 9. Available at www.icj-cij.org/files/case-related/148/17418.pdf.

[204] Ibid., p. 10.

[205] Public sitting held on Thursday 27 June 2013, at 10 a.m. (available at www.icj-cij.org/files/case-related/148/148-20130627-ORA-01-00-BI.pdf), pp. 63–71.

[206] Public sitting held on Thursday 27 June 2013, at 3 p.m. (available at www.icj-cij.org/files/case-related/148/148-20130627-ORA-02-00-BI.pdf), pp. 30–33.

[207] Public sitting held on Wednesday 3 July 2013, at 3 p.m. (available at www.icj-cij.org/files/case-related/148/148-20130703-ORA-02-00-BI.pdf), pp. 49–59.

[208] *Whaling in the Antarctic (Australia v. Japan: New Zealand intervening), Judgment, I.C.J. Reports 2014*, p. 226, at pp. 250–253, paras. 55–61.

[209] Ibid., paras. 67–72.

[210] Ibid., para. 82.

73. However, the Court did not examine directly the definition of scientific research, but simply stated that it did not need to satisfy the four criteria advanced by Australia, as they appeared largely to reflect what the expert for Australia regarded as well-conceived scientific research, rather than serving as an interpretation of the term as used in the Convention. Therefore, it was neither necessary to devise alternative criteria nor a general definition of scientific research.[211] Nevertheless, later in the judgment, the Court eventually did conclude in simple terms that the activities of the second phase involving the lethal sampling could broadly be characterized as scientific research; this was based on the observation that the research plan of the second phase corresponded to four research objectives, which came within the research categories identified by the Scientific Committee.[212] The Court, therefore, concluded that there was no need to examine generally the concept of "scientific research", and the Court's examination of evidence would "focus on whether the killing, taking and treating of whales in pursuance of [the second phase] is for purposes of scientific research".

74. On the other hand, as regards the standard for the phrase "for purposes of scientific research", the Court stated that at stake was whether the design and implementation of a programme were reasonable in relation to achieving the stated research objectives.[213] In the light of this "standard of review", the Court then proceeded to examine if the design and implementation of the second phase were "reasonable" in relation to achieving the stated research objectives. The most important issue in examining this point was the scale of lethal methods, which was determined by the sample sizes.[214] The Court spent most of the second half of the judgment on this issue. In particular, the Court closely analysed the specific target sample sizes for the three species of whales in question, with reference to the statements made by the expert appointed by Japan during the oral argument.[215] Considering all these points, the Court concluded that the evidence did not establish that the design and implementation of the second phase were reasonable in relation to achieving its stated objectives.[216]

75. In the *Whaling* case, both parties appointed expert(s) to be examined in the Court, and it in turn engaged actively in the examination of the experts; moreover, the cross-examination of the experts led to the revelation of an important point on which the decision was largely based. However, the Court still did not appoint its own experts. In addition, while heeding the expert evidence, the Court did not assess the general definition of scientific research, nor did it enter into the complicated scientific issues on this point. Instead, by stressing how it was a matter of interpretation of a legal term in a treaty, it gave a brief decision that the lethal sampling during the second phase was broadly scientific research and separated this from "for purposes of scientific research". This part of the reasoning was criticized by Judge Owada, who stated in his Dissenting Opinion that the Court had abandoned any effort to define what constituted "scientific research", rejecting the criteria advanced by the expert for Australia. He then stated that distinguishing between "scientific research" and "for purposes of scientific research" was "so artificial that it loses any sense of reality when applied to a concrete

[211] Ibid., para. 86.
[212] Ibid., para. 127.
[213] Ibid., para. 97.
[214] Ibid., para. 145.
[215] Ibid., para. 159.
[216] Ibid., paras. 182–198.

situation".[217] At the very least, the Court's reasoning on this part demonstrates its persistent reluctance to base its decision on a technical assessment of the facts.[218]

76. Moreover, the Court's use of "standard of review" and the test for reasonableness were questioned by some of the judges. Judge Xue stated in her Separate Opinion that "it is apparent that the standard of review by the Court should focus on legal issues";[219] however, the question of whether activities under the second phase involved scientific research was a matter of fact rather than a matter of law, and "therefore it should be subject to scientific review" and it is "not for the Court to determine what elements a scientific research should or should not contain; nor is it for the Court to adjudicate what kind of activities involve scientific research".[220] Judge Xue then commented that the Court did not need to ascertain whether the activities during the second phase could "be broadly characterized as 'scientific research'"; the burden of proof should have been on Australia. Accordingly, the Court should have simply found that, on the basis of the evidence, Australia had failed to prove that the activities during the second phase must satisfy the four criteria it had identified. This statement seemingly endorses the principle that the Court is the master of law but the parties govern facts, and does not necessarily suggest that the Court should more actively evaluate facts. From a similar point of view, the standard of "reasonable" was also questioned by Judge Owada: although the judgment broaches the "scientific assessment" of the Court itself on the question of whether various substantive aspects of the activities of the second phase were objectively reasonable, the question arises as to whether this reasonableness should be judged in the context of law or science. He then states that, if the context is indeed that of science, it would be impossible for the Court to establish that certain activities are objectively reasonable or not, from a scientific point of view, "without getting into a techno-scientific examination and assessment of the design and implementation of [the first and second phases] ... which this Court could not and should not attempt to do".[221]

77. To the extent that the Court did assess highly technical issues on its own by comparing the respective pleadings of the parties without resorting to its own experts, such criticism is inescapable.[222] Indeed, the Court seems to have evaded the issue of the general definition of "scientific research" by focusing on legal interpretation; in an effort to separate the legal issues from scientific issues, the Court distinguished between the terms "for purposes of scientific research" and "scientific research". However, as criticized by some of the judges, the Court in fact did assess highly scientific issues on its own as part of its interpretation of treaty law, while creating questions concerning the actual objectivity of the "objective standard of review"

[217] Ibid., para. 86; and, ibid., Dissenting Opinion of Judge Owada, para. 23. Judge Sebutinde (Separate Opinion, ibid., paras. 7–9), Judge Yusuf (Dissenting Opinion, ibid., para. 51) and Judge Xue (Separate Opinion, ibid., paras. 14–16) also supported Judge Owada on this point.

[218] Lucas Carlos Lima states that the Court again evaded taking a position on conflicting scientific issues and avoided setting any general criteria for assessing the evidential weight of expert opinions. See Lucas Carlos Lima, "The evidential weight of experts before the ICJ: reflections on the *Whaling in the Antarctic* case", *Journal of International Dispute Settlement*, vol. 6 (2015), pp. 621–635.

[219] *Whaling in the Antarctic (Australia v. Japan: New Zealand intervening), Judgment, I.C.J. Reports 2014*, p. 226, Separate Opinion of Judge Xue, para. 13.

[220] Ibid., para. 14.

[221] Ibid., Dissenting Opinion of Judge Owada, para. 25.

[222] Ibid., Dissenting Opinion of Judge Abraham illustrates that the same evidence, experts' statements and pleadings can lead an adjudicator to a completely different conclusion. Ibid., Dissenting Opinion of Judge Abraham, paras. 44–48.

regarding the test of reasonableness.[223] This difference of opinion among the judges might stem partly from their different legal backgrounds: most of the judges who have a common law background endorsed or did not dissent from the Court's assessment of the test regarding "for purposes of scientific research".[224] In any event, it is noteworthy that the Court took a more active, attentive and interactive approach during the oral hearings in order to better understand the technical factual issues.[225]

(d) *Aerial Herbicide Spraying* case (2013)

78. In the *Aerial Herbicide Spraying* case,[226] Ecuador claimed that the near/across-border aerial herbicide spraying of Columbia, which targeted illicit narcotics crops, had been causing serious damage to human health and the environment in Ecuador.[227] After having studied the pleadings, including the technical reports, applying

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[223] On the Court's avoiding defining "scientific research", see Brendan Gogarty and Peter Lawrence, "The ICJ *Whaling* case: science, transparency and the rule of law", *Journal of Law, Information and Science*, vol. 23 (2014), pp. 134–160, at p. 134. The Court's handling of the standard of review in this case also prompted discussion in the literature in relation to its objectivity. Guillaume Gros analyses in detail the usage of the standard of review in this case in comparison to the practice of WTO: the fact that, faced with a major methodological difficulty, the Court avoided defining "scientific research" reveals the fragility of the Court's approach and casts doubt on the objectivity of the standard of review (see Guillaume Gros, "The ICJ's handling of science in the *Whaling in the Antarctic* case: a whale of a case?", *Journal of International Dispute Settlement*, vol. 6, No. 3 (2015), pp. 578–620, at p. 597). Makane Moïse Mbengue and Rukmini Das state that, while defining "scientific research" in this case involved treaty interpretation and the judicial review of scientific evidence, the Court could have further elaborated in sufficient detail the objective standard of review, by borrowing the technique of WTO concerning this concept, which was developed in order to distinguish between law and science (see Makane Moïse Mbengue and Rukmini Das, "The ICJ's engagement with science: to interpret or not to interpret?", *Journal of International Dispute Settlement*, vol. 6, No. 3 (2015), pp. 568–577, at pp. 574–576. In his extensive analysis of the standard of review, Stephen Tully harshly criticized the Court's use of the notion in this case: in a similar way to the notion of the margin of appreciation, this methodology is a tool to defer to States' autonomy, obfuscating the legal analyses, because the Court's reasoning on the concept of "reasonableness" is not self-evident at all. He concluded that the Court thus endangered its adjudicative authority and this methodology should not have a lasting impact on the Court's settlement of disputes (see Stephen R. Tully, "'Objective reasonableness' as a standard for international judicial review", *Journal of International Dispute Settlement*, vol. 6, No. 3 (2015), pp. 546–567, at pp. 554–567; and Enzo Cannizzaro, "Proportionality and margin of appreciation in the *Whaling* case: reconciling antithetical doctrines?", *European Journal of International Law*, vol. 27, No. 4 (2016), pp. 1061–1069). See, also, *Whaling in the Antarctic (Australia v. Japan: New Zealand intervening), Judgment, I.C.J. Reports 2014*, p. 226, Dissenting Opinion of Judge Owada, paras. 29–40.

[224] *Whaling in the Antarctic (Australia v. Japan: New Zealand intervening), Judgment, I.C.J. Reports 2014*, p. 226, Declaration of Judge Keith, paras. 9–14; ibid., Separate Opinion of Judge Greenwood, para. 24; ibid., Separate Opinion of Judge Bhandari, para. 20; and, ibid., Separate Opinion of Judge *Ad Hoc* Charlesworth, para. 1.

[225] For a similar opinion, see F.L. Bordin, "Procedural developments at the International Court of Justice", *The Law and Practice of International Courts and Tribunals*, vol. 13 (2014), pp. 223–260, at p. 241.

[226] Although the application of the *Aerial Herbicide Spraying* case was submitted to the Court in 2008 (before the initiation of the *Whaling* case), after three rounds of written pleadings, oral hearings were planned to commence on 30 September 2013, some two and a half months after the closure of the *Whaling* case's hearings. See, the statement by Judge Peter Tomka, President of the International Court of Justice, at the ministerial breakfast "100 years peace palace: advancing the framework for peaceful settlement of disputes", New York, 25 September 2013 (available at www.icj-cij.org/files/press-releases/6/18306.pdf), p. 2.

[227] *Aerial Herbicide Spraying (Ecuador v. Colombia)*, Application Instituting Proceedings, General List No. 138, *I.C.J. Reports 2008*, para. 2.

article 61, paragraph 1, of the rules of Court,[228] the Court proceeded proactively to present to the parties in advance of the hearing a list of technical issues: these were identified as certain issues of a technical nature, which it asked the parties to address during the oral proceedings.[229] The list was composed of 13 questions, all of which related to the scientific information of the spray mixture and the harm caused by it. This exchange could have introduced a Court-led efficient examination of experts, who were informed of the specific technical points that the Court wanted them to address. However, the case was withdrawn just three weeks before the hearings were scheduled to commence, and the parties were never heard in Court.[230]

79. Commenting on the case, the former President, Judge Tomka — stating that both parties produced lengthy correspondence and voluminous evidence involving "complex facts, testimonial evidence and technical, scientific or expert considerations" — stressed that the Court had deployed considerable effort in preparing the hearings. He then identified technical cases such as this, e.g., the *Pulp Mills* and *Whaling* cases, as "lying at the intersection of law and science".[231] On another occasion, he pointed out how both of the parties in the *Aerial Herbicide Spraying* case acknowledged that reaching a settlement would have been difficult without the involvement of the Court, which had already invested considerable energy in preparing for the case, "in particular as regards the processing and assessment of the voluminous evidentiary record and the procedure regarding the deposition of witnesses". He then concluded that the Court's extensive treatment of the highly scientific and technical facts in the *Whaling* and *Aerial Herbicide Spraying* cases indicated that the Court was becoming "an eminently educated, sophisticated and science-friendly judicial organ".[232]

(e) *Construction of a Road* case (2015)

80. This joined case concerned construction on the San Juan River, the upper branch of which (Colorado River) runs entirely within Costa Rica, while the lower branch runs through Nicaragua, partly forming a border along the right bank.[233] There were several major technical issues: as concerns the *Costa Rica v. Nicaragua* case, (a) whether the dredging activities of Nicaragua in the lower river artificially created a channel on Costa Rican territory or whether they only "cleared" an existing channel on Nicaraguan territory; and (b) if Nicaragua had conducted an appropriate environment impact assessment to evaluate the risks of transboundary harm before

[228] "The Court may at any time prior to or during the hearing indicate any points or issues to which it would like the parties specially to address themselves, or on which it considers that there has been sufficient argument."

[229] Letter sent to the Governments of Ecuador and Colombia, 20 June 2013. However, the Court stressed that it was not "seeking further documents or evidence".

[230] *Aerial Herbicide Spraying (Ecuador v. Colombia)*, Order of 13 September 2013, *I.C.J. Reports 2013*, p. 278, at p. 279 (removal from the list).

[231] Statement by Judge Peter Tomka (see footnote 226 above), p. 2; see also the speech by Judge Peter Tomka, at the Sixty-sixth Session of the Commission, 22 July 2014 (available at www.icj-cij.org/files/press-releases/6/18376.pdf).

[232] Ibid., p. 9.

[233] *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)* and *Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), Judgment, I.C.J. Reports 2015*, p. 665, at p. 691, para. 56. The dispute concerning the scope of the navigation rights of Costa Rica on the San Juan River had been settled by the Court in *Dispute regarding Navigational and Related Rights (Costa Rica v. Nicaragua), Judgment, I.C.J. Reports 2009*, p. 213.

the dredging activities.[234] As regards the *Nicaragua v. Costa Rica case*, (a) the Court had to decide whether Costa Rica had conducted an environment impact assessment before constructing a road that partly ran along the two States' border and the river; and (b) if the construction had caused significant damage to the river.[235]

81. The parties appointed independent experts and submitted extensive statements by experts to the Court. The Court elaborated on the methods for the examination of experts, which specified that cross-examination should be limited to the contents of the expert's written statement or earlier reports; re-examination would be limited to subjects raised in cross-examination; and the detailed schedule for the examination of experts was left up to the parties, who were invited to indicate the precise amount of time they wished to reserve for the cross-examination of each expert.[236] Costa Rica called two experts and Nicaragua called five, who were cross-examined by the other party, while also answering questions from the Bench. Active examination by the Bench was seen in the first round,[237] as well as in the second round.[238] The questions from the judges were detailed and aimed at better understanding the meaning or significance of certain technical points, terms or numbers involved in the case, or at gaining further information on the points that they thought were unconvincing or insufficiently supported. As in the *Whaling* case, the examination by the Bench was conducted in an interactive way, involving many follow-up questions and answers.

82. The Court handled all of the technical points in a concise manner in its judgment: it sought to establish if there was a risk of significant transboundary harm in the dredging activities of Nicaragua. In so doing, the Court simply stated that "[h]aving examined the evidence in the case file, including the reports submitted and testimony given by experts called by both Parties", it could conclude that the dredging programme was not such as to give rise to a risk of significant transboundary harm; Nicaragua was thus not required to carry out an environmental impact assessment report.[239] The Court based its decision on a study conducted by Nicaragua in 2006, without assessing any of the counter-arguments by Costa Rica against it. In holding that the construction by Costa Rica of the road carried a risk of significant transboundary harm, the Court concluded by briefly assessing the nature and magnitude of the project: the road project was substantial, at 160 km long; the proximity of its location vis-à-vis the river; and the road was planned to pass through Ramsar-protected sites, heightening the risk of significant damage because of the

[234] *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)* and *Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), Judgment, I.C.J. Reports 2015*, p. 665, at p. 694, para. 63, and p. 705, para. 100.

[235] Ibid., paras. 64, 146 and 174.

[236] Ibid., paras. 34 and 37.

[237] Public sitting held on Tuesday 14 April 2015, at 3 p.m. (available at www.icj-cij.org/files/case-related/150/150-20150414-ORA-02-00-BI.pdf), pp. 38–44, and public sitting held on Friday 17 April 2015, at 10 a.m. (available at www.icj-cij.org/files/case-related/150/150-20150417-ORA-01-00-BI.pdf), pp. 46–53.

[238] Four experts of Nicaragua appeared before the Court: public sitting held on Monday 20 April 2015, at 10 a.m. (available at www.icj-cij.org/files/case-related/152/152-20150420-ORA-01-00-BI.pdf), pp. 35–38; public sitting held on Monday 20 April 2015, at 3 p.m. (available at www.icj-cij.org/files/case-related/152/152-20150420-ORA-02-00-BI.pdf), pp. 17–23; public sitting held on Friday 24 April 2015, at 10 a.m. (available at www.icj-cij.org/files/case-related/152/152-20150424-ORA-01-00-BI.pdf), pp. 18–19 and pp. 51–53.

[239] *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)* and *Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), Judgment, I.C.J. Reports 2015*, p. 665, at p. 707, para. 105.

particularly sensitive receiving environment.[240] In so doing, again, the Court did not assess the counter-arguments of experts for Costa Rica.

83. Furthermore, the Court considered a number of highly scientific matters, such as whether the construction of the road caused significant damage by increasing the total amount of sediment in the river, thus harming the river's morphology, water quality and ecosystems. Faced with these complex issues, the Court pronounced: "It is the duty of the Court, after having given careful consideration to all the evidence in the record, to assess its probative value, to determine which facts must be considered relevant, and to draw conclusions from them as appropriate. In keeping with this practice, the Court will make its own determination of the facts, on the basis of the totality of the evidence presented to it, and it will then apply the relevant rules of international law to those facts which it has found to be established" (citing the *Pulp Mills* case).[241]

84. In this case, the Court's tendency to base its decision on the "uncontested" experts' opinions and parties' arguments continued. Even though the Court could not decide which experts' evidence was credible (on the total amount of sediment), and despite the highly technical nature of the case and a request by one of the parties, it did not resort to the Court-appointed expert — or at least did not appoint the expert under Article 50. Nevertheless, the Court's vigorous efforts to better understand the technical issues and test the credibility of experts' statements during the oral hearings are significant.[242]

85. To conclude this section on the relevant cases of the International Court of Justice, it would be possible to summarize that, in the *Gabčíkovo-Nagymaros* and *Pulp Mills* cases, the Court took, in general, a traditional approach to technical issues, while in the *Whaling* case, both parties appointed expert(s) who were examined by the Court. It was noticeable that the Court had become, at this point, more aware of the need to address technical facts in a particular manner, more so than in the past, and it appears to be embracing an approach that requires it to play a more active role as a fact finder. It is noteworthy, however, that it was precisely the adversarial procedures that enabled the Court to reach a conclusion on technical matters in the *Whaling* case — cross-examination — rather than the inquisitorial methods conducted by the Court. One can still see the persistent cautious attitude in the Court's approach. However, in recent cases, the Court has clearly been taking a more active role as fact finder, going beyond the traditional adversarial structure in this regard. The Court prepared detailed questions on technical matters in the *Aerial Herbicide Spraying* case. In the joined case concerning the San Juan River, while the Court did not appoint its own experts, it examined the party-appointed experts even more vigorously than it did in the *Whaling* case. In the latest *Maritime Delimitation* case, the Court appointed its own experts. Albeit slowly and with prudence, there has clearly been a recognizable shift in the Court's approach towards technical scientific issues.

2. Certain legal principles in assessing scientific evidence[243]

86. Certain legal principles need to be taken into account by international courts and tribunals in assessing scientific evidence: (a) *non ultra petita*, (b) *jura novit curia*, and (c) the standard of proof, as explained below.

[240] Ibid., para. 155.
[241] Ibid., para. 176.
[242] Ibid., para. 206.
[243] The Special Rapporteur expresses his deep appreciation to Mariko Fukasaka for having provided the draft for this section of the present report.

(a) *Non ultra petita*

87. As Article 38 of the statue of the International Court of Justice provides, the Court's function is "to decide in accordance with international law such disputes as are submitted to it".[244] The Court is barred from judging beyond what it has been asked to decide by the parties. This is an established general principle of judicial procedure known as the *non ultra petita* (not beyond the request) rule that is accepted in international courts and tribunals.[245] The limitations imposed by the *non ultra petita* rule influence the Court's treatment of facts: the Court maintains its passive attitude in dealing with facts and considers only the factual assertions and evidence produced by the parties. Considering facts or evidence that have not been asserted or produced by the parties, therefore, may risk exceeding the scope of the subject of the dispute or claim set out by the parties; this would amount to a breach of the *non ultra petita* rule if the decision includes such facts and evidence. The Court's practice demonstrates that the subject of dispute is formulated not only by descriptions of legal issues but also those of fact. Under the principle of *non ultra petita*, the Court will not decide based on facts that have not been asserted or argued by the parties.

88. As Judge Fitzmaurice has pointed out, the fact that the Court is to find is the "relative fact" or "judicial fact", rather than the "absolute fact".[246] This is a fundamental characteristic of the adversarial system, where the focus is on what is revealed during the course of the confrontation of the parties in the litigation, rather than the true reality of the conflict. *Non ultra petita*, therefore, would motivate the Court to base its decision on agreed facts between the parties and to avoid considering disputed facts. Thus, this may contribute to the Court's tendency to avoid considering contradictory technical facts as much as possible, and instead to mainly address undisputed, less complicated facts.

(b) *Jura novit curia*

89. However, there is another aspect that should be considered, i.e., the principle of *jura novit curia* (the court knows the law), which is also established in international law.[247] In the International Court of Justice, this principle is generally understood to dictate that it is for the Court, in the first instance, to find the law that is applicable to the established facts, regardless of whether this particular law was proved or asserted by any of the parties: the Court governs law. The *jura novit curia* principle thus underlines the Court's overall power in applying and interpreting the law. In actual cases, however, the application/interpretation of law inherently involves the assessment of the probative value and relevance of facts and evidence. As the Court constantly states, weighing the significance of facts and evidence in applying law is also the Court's legal function. As such, *jura novit curia* also has a bearing on the Court's role in fact-finding. Based on this principle, therefore, the Court has to know facts as part of law. This is because, in actual cases, how to legally frame a dispute is

[244] Robert Kolb, "General principles of procedural law", *The Statute of the International Court of Justice: A Commentary*, 2nd ed., Andreas Zimmermann and others, eds. (Oxford, Oxford University Press 2012), pp. 870–908.

[245] Ibid., p. 895. See also Mariko Kawano, "The role of judicial procedures in the process of the pacific settlement of international disputes", *Collected Courses of The Hague Academy of International Law*, vol. 346 (2011), pp. 70–80.

[246] Gerald Fitzmaurice, *The Law and Procedure of the International Court of Justice*, vol. 2 (Cambridge, United Kingdom, Grotius, 1986), pp. 524–533.

[247] The principle of *jura novit curia* is most frequently discussed in the context of the Court's identification of customary international law, but it is also considered in the context of the rules of evidence.

intrinsically related to how to construct, present and address factual arguments. The *jura novit curia* principle would thus require the Court to sufficiently understand technical issues.

90. Consequently, *jura novit curia* puts a limit on the restriction imposed by *non ultra petita*. Analysing the limit of *non ultra petita*, Gerald Fitzmaurice stated that the "maxim *jura novit curia* implies that the tribunal both knows and will apply the law, whatever the parties say, or omit to say", which includes basing its reasoning on considerations of both fact and law, potentially including other than that relied upon by the parties.[248] *Jura novit curia*, therefore, can enable or even require the Court to consider factual points that have not been taken by the parties, by virtue of proper application of international law. In dealing with technical matters, such a consideration on its own can often only be done with the assistance of experts.

91. However, another question is: how far the *jura novit curia* principle actually requires the Court to be able to evaluate the relevance of facts and the probative value of evidence. As part of its inherent judicial power, the Court draws its own conclusions based on an evaluation of technical facts; in many cases, the Court has avoided dealing with technical issues and reached a conclusion without giving any specific explanation. As such, the evaluation of facts, i.e., identifying the facts and determining their probative effect, tends to get lost in the application and interpretation of law and has only a figurative, theoretical function. This problem is further tied to a more fundamental question of whether fact can ever be separated from law.

92. The problem is that the *jura novit curia* principle is intrinsically based on the premise that fact and law are separable in adjudication. Furthermore, there are many occasions when the Court specifies certain issues as legal, thus determining the issue to be at the Court's discretion. However, in actual cases inside the courtroom, the line between "fact" and "law" is often obscured.[249] Broadly, there are two sides to this obscureness. The first of these involves technical facts, as illustrated in the *Whaling* case: e.g., evaluating the reasonableness of the design and implementation of the second phase of the whaling programme in relation to its alleged objectives as scientific research. Reasonableness is a legal concept, but at the same time its interpretation and application involve understanding and evaluating highly technical facts. The line between law and fact becomes critically obscure in such technical cases. The second kind of obscureness derives from the general difficulty of separating fact from law in actual cases. Any fact is asserted by the parties on the premise that a certain law will be applied to that fact. In other words, a fact introduced by the parties before the Court cannot be a pure or discrete fact, but is meant to have a certain legal effect, triggering an application of the intended law.

93. Considering the blurred line between fact and law, one cannot avoid the question: what is the scope of the *jura novit curia* principle in the Court? This is because the scope of the *jura novit curia* principle would be the scope of law, which is governed by the Court. The scope of law will also define the scope of fact, which is believed to be largely left in the hands of the parties. The important question that arises here is, as a matter of law, how much discretion does the Court have in determining the relevance and probative value of technical evidence; to what degree does the principle of *jura novit curia* require the Court to *actually* understand technical facts? As a legal matter, on the one hand, it is a fundamental judicial

[248] Fitzmaurice, *The Law and Procedure of the International Court of Justice* (see footnote 246 above), p. 531.

[249] Mojtaba Kazazi, *Burden of Proof and Related Issues: A Study on Evidence before International Tribunals* (The Hague, Kluwer Law International, 1996), pp. 42–49.

function of the Court to properly evaluate evidence; on the other hand, however, precisely because it is a legal matter, it is within the Court's inherent discretionary power to evaluate the facts — authority, probative value, weight, etc. — as it deems appropriate. This question is particularly relevant, because the Court has often focused on legal matters and avoided delving into technical matters as a way of evaluating facts as a matter of law; the assessment of technical factual matters tends to be absorbed in legal reasoning without the Court explaining how it actually evaluated the technical evidence.

94. The question of the scope of law also arises when the Court evaluates the same fact markedly differently from the parties, thus affecting the sufficiency of the parties' pleadings of the facts. Such a dilemma can also arise when the Court applies a certain law that has not been asserted by the parties; as a result, some new factual evidence is required for the parties to support or contest the unexpectedly applied law. If all these Court activities fall under the pure functions of law, the related facts could then also be treated as the Court thinks appropriate. Determining the scope of the *jura novit curia* principle is thus a necessary step in understanding the scope and limit of the Court's role in fact-finding. Caroline Foster has discussed how the cases concerning scientific uncertainties in international courts and tribunals often involve mixed questions of fact and law, and the fact-law distinction is not clear-cut in such cases.[250]

95. In the *Pulp Mills* case, the Court endeavoured to draw conclusions from the evidence produced as appropriate, and to "make its own determination of the facts", applying to them the relevant rules.[251] The Court stated in its judgment in the *Gabčíkovo-Nagymaros* case, describing the factual situation: "Czechoslovakia informed Hungary that it would feel compelled to take unilateral measures if Hungary were to persist in its refusal to resume the works."[252] This is presented as a description of a factual situation, yet in reality it is laden with factors that could only be articulated or conceived of by a person with legal qualifications. Similarly, in the *Pulp Mills* case, the Court assessed "factual and scientific material" that was produced by the parties to establish asserted facts, and for which the parties, the Court confirmed, bore the burden of proof; in so doing the Court stated that, "[t]he record rather shows that a clear relationship has not been established between the discharges from the Orion (Botnia) mill and the malformations of rotifers";[253] or, "the record does not show any clear evidence that substances with harmful effects have been introduced into the aquatic environment or the river through the emissions of the Orion (Botnia) mill into the air".[254] All these phrases, such as "clear relationship", "discharges", "malformations", "harmful effects", "introduced into", "environment" and "emissions", contain indications of a certain legal effect; especially since "harmful effects" was a legal term in a treaty in this case. These statements are so heavily laden with legal implications that it does not even seem clear whether the Court was finding fact or explaining the legal effect of such fact-finding.

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[250] Chittharanjan F. Amerasinghe, *Evidence in International Litigation* (Leiden, Martinus Nijhoff Publishers, 2005), p. 58; and Foster, *Science and the Precautionary Principle* (see footnote 139 above), pp. 137–148.

[251] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 72–73, para. 168.

[252] *Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997*, p. 7, at p. 47, para. 61, and p. 76, para. 133.

[253] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, at p. 100, para. 262.

[254] Ibid., para. 264.

96. Scientific issues are described by commentators as mixed questions of law and fact,[255] which cannot be easily categorized into either a matter of law or fact. Judge Yusuf stated in his Declaration in the *Pulp Mills* case that the experts' role was to elucidate facts and to clarify the scientific validity of the methods used to establish facts or to collect data; whereas it is for the Court to weigh the probative value of the facts.[256] Caroline Foster states that the difference between the respective roles of the judges and the experts lies in the distinction between the particular and the general: the experts are to give their understanding of scientific matters relative to a particular case; whereas it is the judges who are responsible for the broader long-term implications of the way in which a legal term is understood and applied in a given case.[257]

97. Based on *jura novit curia*, the Court can in principle apply any law to any fact, and in theory can evaluate evidence and draw conclusions as it sees appropriate (as long as the Court complies with the *non ultra petita* rule); these are all legal matters. Given its judicial function and under *jura novit curia*, the Court needs to sufficiently understand the meaning of each related technical fact in the case at hand, as an expert would: this is a legal matter. To this end, the Court is encouraged to seek experts' assistance and/or ask the parties to produce further evidence or further explanation; again, the Court must ensure that the parties are given an opportunity to comment on the expert's findings or any new evidence or views produced by the opposing party.

(c) Standard of proof

98. Finally, a reference to the standard of proof may be of some significance here: it is the criterion by which the adjudicator decides whether the party that asserts certain facts has succeeded in proving those facts to the satisfaction of the adjudicator:[258] i.e., the degree of necessary persuasion.[259] The International Court of Justice tends to avoid extensive elaboration of the standard of proof, while occasionally referring to it (often inconsistently, even within a case): e.g., "free from any doubt", "no room for a reasonable doubt", "conclusive", "sufficient", "on the basis of a balance of evidence" and "clear and convincing".[260] However, in some cases, the Court apparently applied the standard of proof as "the preponderance of evidence".[261] "The preponderance of evidence" is a typical common law standard in civil cases as distinguished from the continental law standard, which requires a much higher degree of probability for both civil and criminal cases, i.e., "beyond a reasonable doubt".[262] Under the criteria of the preponderance of evidence, the judges

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[255] Amerasinghe, *Evidence in International Litigation* (see footnote 250 above), p. 58; and Foster, *Science and the Precautionary Principle* (see footnote 139 above), pp. 137–148.

[256] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, Declaration of Judge Yusuf, para. 10.

[257] Foster, *Science and the Precautionary Principle* (see footnote 139 above), pp. 145–147.

[258] Kazazi, *Burden of Proof and Related Issues* (see footnote 249 above), p. 323.

[259] Kevin M. Clermont and Emily Sherwin, "A comparative view of standards of proof", *American Journal of Comparative Law*, vol. 50 (2002), p. 244.

[260] Riddell and Plant, *Evidence before the International Court of Justice* (see footnote 139 above), pp. 126–137; and Katherine Del Mar, "The International Court of Justice and standards of proof", in *The ICJ and the Evolution of International Law: the enduring impact of the* Corfu Channel *case*, Karine Bannelier, Theodore Christakis and Sarah Heathcote, eds. (Abingdon, Routledge, 2012), pp. 98–123, at pp. 99–100.

[261] *For example, Frontier Dispute, Judgment, I.C.J. Reports 1986*, p. 554, at pp. 587–588, paras. 64–65.

[262] Clermont and Sherwin, "A comparative view of standards of proof" (see footnote 259 above), pp. 245–246.

must simply find which party's proof is more convincing, rather than determine if the proof has met a certain fixed probability. In cases that are especially fact-intensive, the Court thus has a tendency to lower the standard of proof to enable the judges to reach a conclusion.[263]

99. This technique might also be used by the Court in tackling technical facts. Judge Greenwood stated in the *Pulp Mills* case that "[t]he present case seems to me to fall squarely within the category of cases which calls for a lower standard of proof", because of the nature of environmental disputes: such disputes are not as serious as cases relating to genocide and the application of the higher standard of proof would have the effect of making it all but impossible for a State to meet the burden of proof. Accordingly, he concluded that the party that bears the burden of proof needs to establish the facts only "on the balance of probabilities (sometimes described as the balance of the evidence)".[264]

100. In the fact-intensive/technical cases, therefore, the Court may also lower the standard of proof if needed, and simply weigh the respective evidence submitted by the parties in order to reach a conclusion. By using this technique, even when satisfied by neither of the parties' proof, the Court does not need to investigate technical factual matters for the sake of reaching a conclusion. In this way, a lower standard of proof may allow the Court to avoid looking into complex factual issues. In addition, the Court's flexible attitude toward the standard of proof may be enhanced by the fact that rules that regulate evidential matters in general in the Court — such as admissibility of evidence and inferences/presumptions in addition to the standard of proof — are significantly underelaborated compared with national courts.[265] Having less established and detailed rules and standards for evidentiary matters inevitably grants the Court wide general discretionary power in evaluating the relevance and probative value of evidence.

3. Jurisprudence of other tribunals

101. Other tribunals of a permanent character such as the International Tribunal for the Law of the Sea and the WTO dispute settlement system are considered here briefly from the viewpoint of scientific evidence. Regional tribunals and ad hoc arbitral tribunals may have their own procedures, which are not considered here.

102. Article 289 of the United Nations Convention on the Law of the Sea provides that: "In any dispute involving scientific or technical matters, a court or tribunal exercising jurisdiction under this section may, at the request of a party or *proprio motu*, select in consultation with the parties no fewer than two scientific or technical experts chosen preferably from the relevant list prepared in accordance with Annex VIII, article 2, to sit with the court or tribunal but without the right to vote." In the *Southern Bluefin Tuna* case, Japan argued at the arbitral tribunal established under annex VII that the dispute was a scientific dispute rather than a legal one, because the primary concern was "only over the accuracy of particular scientific predictions and judgments". The

[263] Del Mar, "The International Court of Justice and standards of proof" (see footnote 260 above), pp. 100–106, who states that in delimitation cases the Court's judicial function is "declarative", thus it applies a relatively low standard of proof.

[264] *Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010*, p. 14, Separate Opinion of Judge Greenwood, para. 26.

[265] Durward V Sandifer, *Evidence Before International Tribunals*, revised ed. (Charlottesville, University Press of Virginia, 1975), pp. 8–15; Kazazi, *Burden of Proof and Related Issues* (see footnote 249 above), pp. 240–241 and 325–326; and Riddell and Plant, *Evidence before the International Court of Justice* (see footnote 139 above), pp. 2–4.

Arbitral Tribunal observed that "the dispute is not one that is confined to matters of scientific judgment only".[266] Neither the Tribunal nor the parties appointed experts in the case. In contrast, the Arbitral Tribunal in the *South China Sea* case actively used its own experts: in accordance with the Tribunal's rules of procedure, article 24, paragraph 1, it appointed an expert hydrographer and another expert on navigational safety. It also appointed three scientific experts on coral reef issues, who gave their independent opinion on the environmental impact of the construction by China on coral reef systems.[267] Based on their reports, the Tribunal found "with respect to the protection and preservation of the marine environment in the South China Sea: (a) that China's land reclamation and construction of artificial islands, installations, and structures ... has caused severe, irreparable harm to the coral reef ecosystem".[268]

103. In WTO dispute settlements, article 13, paragraph 2, of the Understanding on Rules and Procedures Governing the Settlement of Disputes provides that: "With respect to a factual issue concerning a scientific or other technical matter raised by a party to a dispute, a Panel may request an advisory report in writing from an expert review group." Pursuant to this provision, in the *Shrimp* case, the WTO Panel selected five scientific experts,[269] and consulted them on questions concerning the conservation of sea turtles.[270] In addition, WTO Panels regularly appoint scientific experts in disputes under the Agreement on the Application of Sanitary and Phytosanitary Measures in accordance with article 11, paragraph 2, of the Agreement, which provides that: "In a dispute under this Agreement involving scientific or technical issues, a panel should seek advice from experts chosen by the panel in consultation with the parties to the dispute."[271] Panels are also authorized to establish "a technical expert group to

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[266] *Southern Bluefin Tuna (New Zealand-Japan, Australia-Japan), Award on jurisdiction and admissibility, Decision of 4 August 2000, Reports of International Arbitral Awards*, vol. XXIII (Sales No. E/F.04.V.15), pp. 1–57, at paras. 40 (a) and 65.

[267] Permanent Court of Arbitration, *South China Sea Arbitration, Philippines v. China, Award*, Case No. 2013-19, 12 July 2016, paras. 58, 85, 88 and 90. In this context, the Tribunal's treatment of evidence in the *Philippines v. China* case, in which China did not participate in the proceedings, provides an important and relevant insight: under article 9 of annex VII to the United Nations Convention on the Law of the Sea, faced with the default of appearance, the Tribunal has to satisfy itself that "the claim is well founded in fact and law" — which is an identical phrase to that used in Article 53 of the statute of the International Court of Justice. The Tribunal explained that this article seeks to balance the risks of prejudice that could be suffered by either party in a non-appearance case; at length, it emphasized its intention to safeguard the procedural rights of both of the parties, by having "taken various steps to ensure both Parties the opportunity to address specific issues of concern to the Tribunal's decision-making", and to address any issues that the Tribunal considers "not to have been canvassed, or to have been canvassed inadequately" — especially considering the fact that the Philippines had expressed concerns over the possible disadvantages that it may suffer as a result of the non-participation of China (ibid., paras. 116–128).

[268] Dispositif B, para. (13) a.

[269] WTO, Panel report, *United States — Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/R and Corr.1, adopted on 6 November 1998, para. 5.6. The Special Rapporteur notes with deep appreciation the contribution of Yuka Fukunaga to this section.

[270] Ibid., para. 5.1.

[271] See, e.g., WTO, Panel report, *European Communities Measures Concerning Meat and Meat Products (Hormones)*, WT/DS26/R/USA, adopted on 13 February 1998, sect. VI and paras. 8.5–8.9; and WTO, Panel report, *European Communities Measures Concerning Meat and Meat Products (Hormones)*, WT/DS48/R/CAN, adopted on 13 February 1998, sect. VI and paras. 8.5–8.9. See also Yuka Fukunaga, "Experts in WTO and investment litigation", in *WTO Litigation, Investment Arbitration, and Commercial Arbitration*, Jorge A. Huerta-Goldman, Antoine Romanetti and Franz X. Stirnimann, eds. (Alphen aan den Rijn, Kluwer Law International, 2013), pp. 135–168, at pp. 142–150.

assist in questions of a technical nature, requiring detailed consideration by experts" and "[a]t the request of a party to a dispute, or at its own initiative" under article 14, paragraph 2, of the Agreement on Technical Barriers to Trade.[272]

104. In view of the above, the following draft guideline is proposed:

Draft guideline 12: Dispute settlement

1. **Disputes relating to the protection of the atmosphere from atmospheric pollution and atmospheric degradation are to be settled by peaceful means as established in Article 33, paragraph 1, of the Charter of the United Nations, i.e., through negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, or resorting to regional agencies or arrangements.**

2. **Given that such disputes may be of a fact-intensive and science-dependent character, due consideration should be given to the rules and procedures concerning, inter alia, the use of experts in order to ensure proper assessment of scientific evidence, if such disputes are to be settled by arbitration or judicial procedures. Such experts may be appointed by each party and cross-examined by the other party. They may also be appointed by the court or tribunal to which the dispute is submitted.**

3. **It may be taken into consideration, as appropriate, in the judicial settlement of disputes relating to the protection of the atmosphere, that the principle of *jura novit curia* (the court knows the law) applies not only to law but also to facts, thereby requiring necessary assessment of scientific evidence, on the condition of not exceeding the scope of the dispute under the rule of *non ultra petita* (not beyond the request).**

V. Conclusion

105. The Commission has so far provisionally adopted draft guidelines containing certain obligations, as well as recommendations, relating to the protection of the atmosphere. The present report has reaffirmed that it is an intrinsic and logical consequence for States to implement in good faith these obligations in their national law. Compliance mechanisms adopted in multilateral environmental agreements are intended to facilitate States' compliance with their obligations. The report has also focused on the settlement of disputes relating to the protection of the atmosphere, which tends to be fact-intensive and science-heavy, for which scientific evidence is crucial.

106. With this fifth report, the Special Rapporteur hopes that the Commission will conclude the first reading of the topic in 2018, and the second reading, on the basis of his sixth report, in 2020.

[272] See, e.g., WTO, Panel reports, *European Communities — Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/R, WT/DS292/R and WT/DS293/R, adopted on 21 November 2006, paras. 7.12–7.30.

Annex I

Draft guidelines and preamble on the protection of the atmosphere so far provisionally adopted by the Commission

Preamble

Acknowledging that the atmosphere is essential for sustaining life on Earth, human health and welfare, and aquatic and terrestrial ecosystems,

Bearing in mind that the transport and dispersion of polluting and degrading substances occur within the atmosphere,

Noting the close interaction between the atmosphere and the oceans,

Recognizing therefore that the protection of the atmosphere from atmospheric pollution and atmospheric degradation is a pressing concern of the international community as a whole,

Aware of the special situation and needs of developing countries,

Aware also, in particular, of the special situation of low-lying coastal areas and small island developing States due to sea-level rise,

Noting that the interests of future generations of humankind in the long-term conservation of the quality of the atmosphere should be fully taken into account,

Recalling that these draft guidelines are not to interfere with relevant political negotiations, including those on climate change, ozone depletion, and long-range transboundary air pollution, and that they also neither seek to "fill" gaps in treaty regimes nor impose on current treaty regimes legal rules or legal principles not already contained therein,

[Some other paragraphs may be added and the order of paragraphs may be coordinated at a later stage.]

Guideline 1: Use of terms

For the purposes of the present draft guidelines,

(a) "Atmosphere" means the envelope of gases surrounding the Earth;

(b) "Atmospheric pollution" means the introduction or release by humans, directly or indirectly, into the atmosphere of substances contributing to deleterious effects extending beyond the State of origin of such a nature as to endanger human life and health and the Earth's natural environment;

(c) "Atmospheric degradation" means the alteration by humans, directly or indirectly, of atmospheric conditions having significant deleterious effects of such a nature as to endanger human life and health and the Earth's natural environment.

Guideline 2: Scope of the guidelines

1. The present draft guidelines [contain guiding principles relating to] [deal with] the protection of the atmosphere from atmospheric pollution and atmospheric degradation.

2. The present draft guidelines do not deal with, but are without prejudice to, questions concerning the polluter-pays principle, the precautionary principle,

common but differentiated responsibilities, the liability of States and their nationals, and the transfer of funds and technology to developing countries, including intellectual property rights.

3. The present draft guidelines do not deal with specific substances, such as black carbon, tropospheric ozone and other dual-impact substances, which are the subject of negotiations among States.

4. Nothing in the present draft guidelines affects the status of airspace under international law nor questions related to outer space, including its delimitation.

[The alternative formulations in brackets will be subject to further consideration.]

Guideline 3: Obligation to protect the atmosphere

States have the obligation to protect the atmosphere by exercising due diligence in taking appropriate measures, in accordance with applicable rules of international law, to prevent, reduce or control atmospheric pollution and atmospheric degradation.

Guideline 4: Environmental impact assessment

States have the obligation to ensure that an environmental impact assessment is undertaken of proposed activities under their jurisdiction or control which are likely to cause significant adverse impact on the atmosphere in terms of atmospheric pollution or atmospheric degradation.

Guideline 5: Sustainable utilization of the atmosphere

1. Given that the atmosphere is a natural resource with a limited assimilation capacity, its utilization should be undertaken in a sustainable manner.

2. Sustainable utilization of the atmosphere includes the need to reconcile economic development with protection of the atmosphere.

Guideline 6: Equitable and reasonable utilization of the atmosphere

The atmosphere should be utilized in an equitable and reasonable manner, taking into account the interests of present and future generations.

Guideline 7: Intentional large-scale modification of the atmosphere

Activities aimed at intentional large-scale modification of the atmosphere should be conducted with prudence and caution, subject to any applicable rules of international law.

Guideline 8 [5]: International cooperation

1. States have the obligation to cooperate, as appropriate, with each other and with relevant international organizations for the protection of the atmosphere from atmospheric pollution and atmospheric degradation.

2. States should cooperate in further enhancing scientific knowledge relating to the causes and impacts of atmospheric pollution and atmospheric degradation. Cooperation could include exchange of information and joint monitoring.

Guideline 9: Interrelationship among relevant rules

1. The rules of international law relating to the protection of the atmosphere and other relevant rules of international law, including inter alia the rules of international trade and investment law, of the law of the sea and of international human rights law, should, to the extent possible, be identified, interpreted and applied in order to give rise to a single set of compatible obligations, in line with the principles of harmonization and systemic integration, and with a view to avoiding conflicts. This should be done in accordance with the relevant rules set forth in the Vienna Convention on the Law of Treaties of 1969, including articles 30 and 31, paragraph 3 (c), and the principles and rules of customary international law.

2. States should, to the extent possible, when developing new rules of international law relating to the protection of the atmosphere and other relevant rules of international law, endeavour to do so in a harmonious manner.

3. When applying paragraphs 1 and 2, special consideration should be given to persons and groups particularly vulnerable to atmospheric pollution and atmospheric degradation. Such groups may include, inter alia, indigenous peoples, people of the least developed countries and people of low-lying coastal areas and small island developing States affected by sea-level rise.

Annex II

Draft guidelines proposed by the Special Rapporteur in the present report

Draft guideline 10: Implementation

1. States are required to implement in their national law the obligations affirmed by the present draft guidelines relating to the protection of the atmosphere from atmospheric pollution and atmospheric degradation. National implementation takes the forms of legislative, administrative and judicial actions.

2. Failure to implement the obligations amounting to breach thereof entails the responsibility of States under international law, if the actions or omissions are attributable to the States and the damage or risk is proven by clear and convincing evidence.

3. States should also implement in good faith the recommendations contained in the present draft guidelines.

4. The extraterritorial application of national law by a State is permissible when there is a well-founded grounding in international law. It should be exercised with care, taking into account comity among the States concerned. The extraterritorial enforcement of national law by a State should not be exercised in any circumstance.

Draft guideline 11: Compliance

1. States are required to effectively comply with the international law relating to the protection of the atmosphere in accordance with the rules and procedures of the relevant multilateral environmental agreements.

2. For non-compliance, facilitative and/or enforcement approaches may be adopted, as appropriate.

3. Facilitative measures include providing assistance to non-complying States in a transparent, non-adversarial and non-punitive manner to ensure that those States comply with their international obligations by taking into account their capabilities and special conditions.

4. Enforcement approaches include issuing a caution of non-compliance, termination of rights and privileges under the relevant multilateral environmental agreements and other forms of sanctions. These measures should be adopted only for the purpose of leading non-complying States to return to compliance.

Draft guideline 12: Dispute settlement

1. Disputes relating to the protection of the atmosphere from atmospheric pollution and atmospheric degradation are to be settled by peaceful means as established in Article 33, paragraph 1, of the Charter of the United Nations, i.e., through negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, or resorting to regional agencies or arrangements.

2. Given that such disputes may be of a fact-intensive and science-dependent character, due consideration should be given to the rules and procedures concerning, inter alia, the use of experts in order to ensure proper assessment of

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scientific evidence, if such disputes are to be settled by arbitration or judicial procedures. Such experts may be appointed by each party and cross-examined by the other party. They may also be appointed by the court or tribunal to which the dispute is submitted.

3. It may be taken into consideration, as appropriate, in the judicial settlement of disputes relating to the protection of the atmosphere, that the principle of *jura novit curia* (the court knows the law) applies not only to law but also to facts, thereby requiring necessary assessment of scientific evidence, on the condition of not exceeding the scope of the dispute under the rule of *non ultra petita* (not beyond the request).